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APRIL 1955

Consumers' Research

BULLETIN

APRIL • 1955

1955 Automobiles

CR Puts Steam Irons Through Their Paces

Air Conditioning - Part II

COMPLETE CONTENTS ON INSIDE FRONT COVER

Consumers' Research Bulletin

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APRIL 1955 **VOL. 35 • NO. 4**

Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR BULLETIN. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

OFF THE EDITOR'S CHEST

ISN'T the American Consumer usually too good natured to make a complaint when he is sold an unsatisfactory piece of merchandise? Not long ago, a CR subscriber asked us whether she would be justified in making a complaint to the manufacturer about a recently-purchased expensive rotisserie with a baking attachment that failed to work as promised. She reported that it didn't bake, no matter how carefully she followed directions, and she had wasted considerable money on ingredients. It would seem to us that not only was she justified, but that it would be in the public interest for her to make a complaint. Quite possibly her letter would reach the attention of some executive in a position to correct the difficulty, and her action would perhaps save others from disappointment.

In another case, a woman who went shopping after reading a department store advertisement for a sale of walking shoes with medium heels, found only dressy shoes with high heels. Her indignant letter to the president of the store brought to light the fact that the walking shoes had been omitted by mistake and he was grateful for having the matter brought to his attention.

Too often a woman who has made an unsatisfactory purchase will berate the manufacturer, or the store where she made the purchase, to the members of her bridge club and perhaps try to persuade them not to make another purchase of that make or from that store. One highly competent department store consultant expressed indignation at this attitude, for he felt it was quite unfair, particularly to stores of the caliber of his client's. It was his view that the difficulty should always be brought to the attention of the management, not only to give the store an opportunity to deal with the customer's dissatisfaction, but to avoid such faulty merchandise in the future. There may be only a small amount of money involved, but you may render a valuable public service by saving other consumers from a similar unhappy experience.

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It will be advantageous if you will, whenever possible, send prompt notice of change of address at least 5 weeks before it is to take effect, accompanying your notice with statement of your old address with name in full. At least a month's notice must be given in any case. ¶This rule, however, regarding long advance notice does not apply to military personnel. *CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.*

Symbols used to indicate sources of data and bases of ratings: A—recommended on basis of quality; AA—regarded as worthy of highest recommendation; B—intermediate with respect to quality; C—not recommended on basis of quality; CU—information from Consumers' Research's own tests or investigations. **1, 2, 3**—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price**; 54, 55—year in which test was made or information obtained or organized by the staff of Consumers' Research.

The Consumers' Observation Post

WHAT DOES IT COST YOU to own and drive your own automobile? The answers to that question are discussed in a little booklet, Your Driving Costs, put out by the American Automobile Association. According to one computation, if you use your car constantly on company business you should expect an allowance of $1.55 per day for such use, plus 3-1/2 cents a mile for each mile driven on company business. This formula is based on the cost of operating the lighter cars such as Ford, Chevrolet, and Plymouth. The private car owner using this formula is advised to compute his cost of operation at $1.55 for every day of the year. In planning a vacation trip by car, the A.A.A. suggests allowing an over-all daily expense total of around $30 a day for two people, and planning on no more than 300 miles of driving in a day.

* * *

MEN'S SUMMER SUITS advertised as washable need special handling as a rule. One observing trade editor points out that shoulder pads and partial linings often prevent a suit from being washed with satisfactory results.

* * *

ARTIFICIAL SWEETENERS may be helpful as part of a supervised restricted diet to reduce calory consumption, but there is no clear evidence that indiscriminate use of artificially-sweetened foods will be successful in effecting weight reduction. That is the conclusion to be drawn from a report of a special committee of the National Research Council to the Federal Food and Drug Administration on the use of saccharin or "Sucaryl" in foods and soft drinks. The committee recommended that all artificially-sweetened foods be classified as "special purpose" foods and distributed under the regulations for such foods. It considered "Sucaryl" in soft drinks available for general consumption as somewhat undesirable in view of the fact that its harmlessness at levels of probable maximum intake has not been established.

* * *

THE COMMONLY USED METHOD of seeking to prevent athlete's foot by wading in a basin of antiseptic solution near the shower or swimming pool is ineffective and potentially harmful according to four physicians of New York City. Experiments, reported by Dr. Rudolf L. Baer, Dr. Stanley A. Rosenthal, Dr. Jerome Z. Litt, and Dr. Hyman Rogachefsky, in Science Service, indicated that wading for a few seconds in a basin of antiseptic solution was ineffective, unhygienic and should be abandoned. It was their conclusion that contagion played a negligible part in bringing on attacks of athlete's foot. For prevention, they recommended the use of perforated (ventilated) shoes and regular use of a drying, mildly fungus-checking foot powder.

* * *

IS A "TOP GRAIN COWHIDE" BAG better than one labeled "Deep Buff" or "Split Grain," or just more expensive, is a question raised by a CR subscriber. These labels are furnished to manufacturers of leather goods at cost by the Tanners' Council of America under an agreement that they will be properly used to be affixed to articles made from cattle hides. The classifications range from "Top Grain," which is the best quality taken from the outer surface of the hide from which nothing has been removed but the hair, to "Slab" which is the lowest grade from the innermost layer. Intermediate are "Deep Buff" and "Split Cowhide," also called "Split Grain." The outer side or "Top Grain" is considered the most durable and, all other things being equal, should give better wear (and much better appearance after a period of use) than products made from the inner or flesh layers of the hide which are often finished to look like "Top Grain." It is wise to look for the label.

EATING A GOOD BREAKFAST may be an important factor in high school students' marks. A study made by a home economics instructor at Millington, Mich., of 73 teen-age girls, indicated that 13 ate no breakfast, 35 had a minimum breakfast, while only 25 ate what could be considered an adequate meal. The conclusion drawn was that classroom indifference may be caused by hunger, rather than laziness.

* * *

GARMENTS SHOWING A LOSS OF COLOR around the neck and upper shoulders are appearing in the Garment Analysis Department of the National Institute of Drycleaning in increasing numbers, particularly when women take clothes out of storage. The color loss has been diagnosed as chiefly due to home permanent cold-wave solutions, which may not show when first spilled on a fabric. In some cases, reports the N.I.D., it takes three or four weeks, in others three or four months after cleaning, for a color change to develop. Both the waving solution and the neutralizing agent will damage or change the color of many fabric dyes. Hair dye inadvertently splashed on a dress may also cause permanent damage to the garment.

* * *

ORANGES MAY NO LONGER BE COLORED with the coal-tar dye FD&C Red No. 32 to make them more attractive to consumers. The Food and Drug Administration has formally banned FD&C Orange No. 1 and No. 2, and Red No. 32 as "not harmless nor suitable for use" when taken internally. It appears that Florida oranges from the Indian River area have naturally-colored orange skins, but those from other areas are not so attractive in appearance, so that growers from the latter sections have customarily applied the coal-tar dye now banned by government order. Women who make orange marmalade at home will undoubtedly be pleased at the prospect of greater certainty of getting undyed oranges.

* * *

WHETHER TO PUT FLUORIDE into drinking water or not is a much debated question in certain areas of the United States. According to Dr. Clive M. McCay, eminent nutritionist, of Cornell University, the time is not ripe for such action. In a radio broadcast last year, Dr. McCay commented that while evidence is convincing that fluoride helps protect children's teeth against decay, evidence is not convincing that the cumulative effect of fluorides may not produce injury in people after long drinking of fluoridated water. He pointed out that neither Sweden nor Switzerland, both famous for taking care of the general health of their people, has seen fit to adopt a program of compulsory fluoridation of drinking water, although they have had groups of scientists studying the matter for years. Dr. McCay suggests that a far more logical step would be to put fluoride into sugar, as iodine, for those who need it, is now added to salt.

* * *

IF THE HOME GARDENER has not been bombarded with advertising for quite so lavish an array of "colossal" bulbs and nursery stock or "miracle-working" plant nutrient materials this spring, it may mean the flashier operators in the field have heard of the activities of the Federal Trade Commission and the Better Business Bureaus. The average gardener is often carried away by the extravagant claims in large-sized type that have appeared in many reputable newspapers and magazines these past few years. In fact, the pitchman-type of promotion has been so prevalent that the more conservative firms in the field have been hard pressed to protect their investment in new developments and at the same time present their wares in truthful terms. Currently the F.T.C. is directing its efforts toward drawing up a code of business ethics designed to help all organized segments of commercial horticulture, particularly those firms dealing directly with the home gardening public, to combat extreme advertising claims. Consumers who feel that they have been sold chemical soil conditioners, nursery plants, trees and shrubs, gladiolus and other bulbs, particularly by mail, by grossly misleading claims can cooperate in helping to police this code by

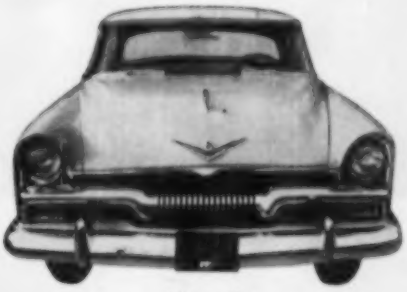
(The continuation of this section is on page 37)

Automobiles for 1955

Editor's note

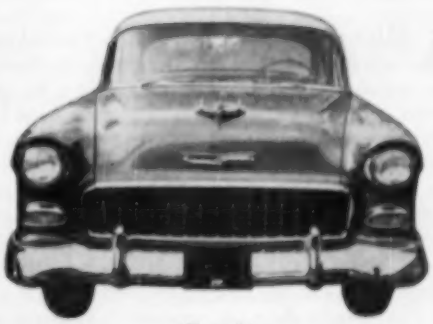
In order to be able to issue this report on 1955 automobiles at the earliest possible date, it was necessary for us to limit the number of cars to be tested. While some subscribers may be disappointed that tests were not made on cars of all makes, it was felt that the interests of the great majority of our subscribers would be served if as many as possible of the cars that sell in the largest numbers were tested in the time available between their appearance on the market and the time this issue must go to press. Sales figures available for the first nine months of 1954 showed *Chevrolet* and *Ford* tying for first place, each having 25.1 percent of the total sales; *Buick* third, 9.6 percent; *Oldsmobile* fourth, 7.5 percent; *Plymouth* fifth, 7.3 percent; *Pontiac* sixth, 6.3 percent; *Mercury* seventh, 5.2 percent; *Dodge* eighth, 2.7 percent; *Cadillac* ninth, 2 percent; *Chrysler* tenth, 1.8 percent; *Studebaker* eleventh, 1.7 percent; *Nash* twelfth, 1.6 percent; *DeSoto* thirteenth, 1.4 percent; *Packard* fourteenth, 0.8 percent; *Lincoln* fifteenth, 0.7 percent; *Hudson* sixteenth, 0.7 percent; *Willys* seventeenth, 0.3 percent; *Kaiser*, 0.2 percent. It will be evident that according to this record of relative sales position, *the first five cars* named accounted for about *75 percent of sales*. If the *Pontiac*, *Mercury*, *Dodge*, *Cadillac*, and *Chrysler* are added, *93 percent* of the cars sold on the American market would be accounted for.

It was decided that in order to complete the work in time for this issue, tests would have to be limited to representative samples of the ten makes that lead in sales volume. It was necessary to test three different models of the *Ford*, *Chevrolet*, and *Plymouth* cars because these big-selling automobiles are available with 6-cylinder *or* V-8 engines, and with standard and automatic transmissions. There were three exceptions to the selection of cars from the top-ten group; one was the substitution of a *DeSoto* for a *Chrysler* (which was not available in time); second, inclusion of a *Studebaker Champion* for those primarily interested in best possible miles per gallon with a "standard" American-type automobile; and third, inclusion of a *Packard* in order to check the claims for the radically new type of spring suspension which is being offered this year in *Packard* cars.



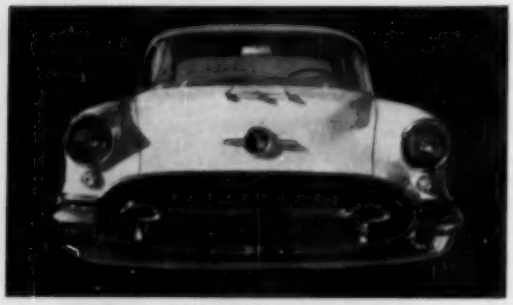
Plymouth

Ford



Chevrolet

Buick Special



Oldsmobile Super 88

DeSoto

A MID-WESTERN NEWSPAPER has published a story about the chief engineer of one automobile company who, when he presented the complete horsepower data based on dynamometer tests for the current model engine, was told by his company's sales manager that the rated horsepower would have to be shown as three horsepower higher, in order to exceed the announced horsepower of a competitor's engine. This power step-up could be provided merely by a change in test method to give a result that would show an apparently higher horsepower. (Automobile manufacturers have carefully standardized, through the Society of Automotive Engineers, a great many of the parts and materials they use in manufacturing cars, but they have shown a notable lack of interest in standard specifications for the cars or the methods by which cars are tested.) While we cannot vouch for the truth of all the details of the newspaper story, we do not doubt that it reflects a situation that typifies today's trends in the automobile industry.

It is an old story in the automobile industry that the advertising men and sales people have more to say about what the cars shall be like and what shall be said about them than do the engineers. Thus changes and "improvements" are made not with a view toward producing better and safer cars, but rather to give the sales department and the people who write the expensive, multicolored advertising, something new and different to talk about. Safety, of course, does not lend itself well to advertising ballyhoo, and it is considered poor advertising practice even to suggest that using a car involves risks of injury or death. On that account, measures and designs that might improve safety are largely ignored both in selling and in the engineering of the new models. For instance, hood ornaments of many makes could hardly have been made more deadly as possible causes of injury to pedestrians had the designers gone to a museum of medieval weapons to develop their conceptions; and the slow-moving or incautious pedestrian may not only be injured in many obvious ways by an oncoming automobile, but he stands a good chance of being neatly speared by one to three lance points as well. (See illustration on page 9.)

The low, sleek look has been obtained by lowering the body and seats of the car, which interferes greatly with the driver's view of the road, and reduces road clearance. The higher the driver is seated, the better his view of the road, and his ability to judge distances (one reason why bus and truck drivers seated high above the road can pass other trucks and cars with ease, with only a few inches to spare). The higher a driver's line of sight, the sooner he will see a car approaching from the other side of a hill or rise in the road. With modern low-slung cars, traveling at 50 or 60 miles per hour approaching a normal crest in the road from opposite sides, the drivers will not see each other's cars until the distance between them is less than the distance in which they can brake their cars to a stop; such limitation of the view ahead is wholly unsound and obviously adds to the many hazards associated with modern design trends in automobiles. Reduced road clearance is, of course, the opposite of what should be done so long as people must drive at times on rough or country highways or lanes, or in snow or mud. At the same time, the designs have reduced ease of access to the cars so that getting in and out involves conditions which are awkward or embarrassing to heavy-set persons and persons of medium or tall stature. Reduction in headroom, particularly in the rear, has introduced a hazard on some cars that rear-seat passengers may bump their heads violently against the rear window frame.

There has been much talk of eliminating protruding knobs and devices on dashboards which

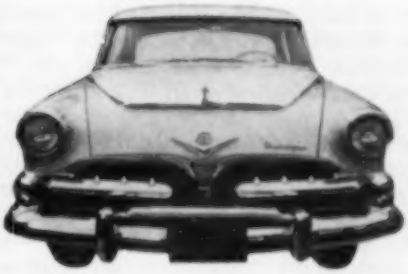
are one of the main causes of head injuries that account for three out of four fatalities in automobile accidents; yet this year's dashboards look very much like the previous ones, with little or no effort made to eliminate projections and set back the controls below the surface of a smooth and well-padded instrument board. Possibly it is the designers' opinion that if the dashboard were well designed and properly padded, people would be reminded that drivers or passengers are sometimes killed or maimed in automobile accidents.

With one notable exception, manufacturers of automobiles have promptly made available to CR the detailed specifications of their 1955 models, which give such basic information as compression ratio, cooling system capacity, fuel tank capacity, etc.

Automobile prices

This year CR is reporting factory delivered prices only, instead of the customary dealers' delivered prices in New Jersey or New York City. The reason for this is that delivered prices vary widely, depending on the dealer, locality, and, to put it bluntly, what the traffic will bear in a particular town and for a particular customer. The situation in this respect is much worse than formerly, and now some dealers' prices include a "pack" or a cushion of anything from fifty to several hundred dollars, used to provide leeway in arriving at the allowance on the car to be turned in. Thus, if the customer is hard to sell, the dealer can offer what seems to be a liberal allowance for the old car, exceeding its "book value" by some substantial amount, up to the amount of the pack. (This also makes it easier for the buyer to meet the one-third-down requirement of most financing contracts.)

Actually the consumer is getting nothing except perhaps a feeling that he has made a shrewd deal, for the "extra" allowance comes out of the consumer's own pocket, through the dealer's having established a fictitious and excessive price for the new car. This is actually a variant of the fictitious price scheme on appliances, radio sets, and other articles where prices are marked up far above their normal market level to make the consumer think he is getting a bargain when he secures the item at a big "discount." In the war period, it was obligatory for automobile dealers to post their prices in plain view in their showrooms; this was an excellent idea, and in CR's opinion should be a rule imposed by manufacturers upon their dealers. Many dealers oppose enforced price marking on the grounds that regulation is bad and they do not want it, overlooking the fact that government regulation will often not be necessary or demanded if auto dealers would but have the vision to deal with their customers as they would wish to be dealt with by merchants who sell goods to them. Theoretically, the manufacturers have no control over the prices dealers may set for their cars. They only "suggest" retail prices. Ford and Chrysler are said to be opposed to "excessive" mark-ups, while the so-called "dependents" (smaller car manufacturers) claim their dealers are not packing prices. Information was not available on General Motors' position, but if they have not taken a public stand on this question it is high time they did.



Dodge

Pontiac

The consumer may wonder how he can determine if the price he is asked is a real one and does not include a big "pack." Shopping around from dealer to dealer in a given region may not disclose anything, for frequently dealers, through their local associations, may have come to an agreement to keep their net delivered prices pretty closely in line. The only way to be sure there is no pack in the price is to demand a complete itemized breakdown of the amount charged, and if any of the items seem excessive, question them. The base price of the car is set by the manufacturer and is available to the consumer if he will take the trouble to insist that the dealer give him a complete breakdown of his delivered

price. If there is doubt as to the base price being given correctly, check with another dealer or two, possibly in a different town or city. The base prices *plus federal excise tax* are given in this BULLETIN at pages 20-22. The base price can be calculated by deducting about 7 percent from the prices shown in the various price groupings. The difference between this base price and the actual price paid at your dealer's showroom for the car without extra accessories is made up of federal excise tax, freight, and a preparation and conditioning charge (this is very likely to be the item in which most of the packing is done). In some states there is a sales tax besides. If the dealer is packing the price, he may lump several or all of these charges together, making it difficult to determine if any particular item has been charged correctly. The wise consumer will insist on detailed itemization. An example below is the breakdown of the delivered price of a typical car without a "pack."

Base price	$1886
Federal excise tax	149
Freight	72
Preparation and conditioning	35
Automatic transmission	180
Delivered price	$2322

The dealer who quotes this price may offer $1075 for the car being turned in, leaving a net amount of $1247 to be paid by the purchaser. Another dealer who is packing his prices may quote a delivered price of $2572—by raising the base price $100 and charging $185 for preparation and conditioning. This dealer can offer $250 more for the car being turned in than the first dealer and make the same profit. In other words, he has a margin of $250 to bargain with, and if he can make a deal by offering only say $150 more for the turn-in than the first dealer, he makes an extra $100 profit for himself, and the customer, misled by figure-juggling, will very likely think he has been given a specially good break.

In brief, don't be fooled by a big overallowance on the turned-in car. It's the net outlay that counts, and it's on that alone you should do your "comparison shopping."

The prices on the 1955 cars herein are the base price plus federal excise tax, which is the same as the factory delivered price, less handling charges. The only legitimate charges a dealer should add to this are for freight and a *small* charge for preparation and conditioning; some also charge for gasoline and oil. All extras, such as radio, heater, automatic transmission, etc., *should be listed and priced individually and separately*. Where the policy is to group accessories under various designations, such as Group AB, Group CM, etc., the dealer should be requested to itemize the accessories which each group covers and show the price of each separate item. Many who buy under time-payment plans are mainly interested in what their monthly payment will be and not in the actual cost of the car; this is most unwise, for it permits an unscrupulous dealer to pack the bill to the limit; he likes nothing better than the kind of customer who takes a car on the basis of what it *costs per month* to buy it, instead of how much the *total outlay will be* when it is fully paid for and owned by the purchaser.

High vs. moderate horsepower

The horsepower race goes merrily on. *Chrysler* is now leading the field of claimed maximum horsepower with an engine rated at 300 horsepower. The conclusion that the automobilist and the luckless pedestrian must draw from the manufacturers' mad competition for higher and higher engine horsepowers is that the automobile industry is so bent on sales that it does not seem to mind putting lethal weapons into the hands of many drivers who are not careful, skilful, or responsible enough to be entrusted with such enormous capabilities of power and speed. A few people have been heard to argue for higher horsepower with the assertion that it actually makes their cars safer. (One could just as well argue that it makes the many millions of cars of previous years with lower horsepower *less* safe.) While the high horsepower may occasionally enable a person to get out of a tight spot and avoid an accident, it is much more likely to bring about his death or injury because it will encourage him to take a chance in overtaking and passing a car or truck which should never have been taken. Roads are not good enough or so lightly traveled that automobile users can safely take advantage of anything like a 200 or 300 horsepower engine.

It must be conceded that a goodly proportion (up to 40 percent on an engine rated at 200 horsepower) of the gross horsepower is to provide for the high energy consumption of power steering, power braking, and other accessories, particularly automatic transmission. Even when allowance is made for this, the horsepowers of the medium-price-bracket and high-price-bracket cars are very much too high. No one should allow himself to be persuaded that horsepower (per 1000 pounds of weight) much above that of the *Ford*, *Plymouth*, *Chevrolet* class of cars can be used without a net loss of the safety in driving.

(For horsepower per 1000 pounds of car weight plus weight of passengers, see pages 18 and 19.)

Manufacturers are showing a single lack of consideration for the public welfare in this matter of high horsepower, and no high executive in the industry seems to have the courage of his convictions that would cause him to take a position of leadership against the present trend. As surely as fate, the industry is going to suffer for this lack of vision, for if they do not clean the situation up in the public interest, it will be cleaned up for them by public authority—and they will not like the result.

One George F. Kurzman, writing in the New York Times, has made a suggestion that a federal automobile use tax law be enacted by which there will be a rapidly increasing tax for horsepowers above 100—say $500 a year for a car with horsepower that would permit driving at very high speeds unless the car is equipped with a trustworthy governor which would limit its speed under any condition to a maximum of 65 miles per hour. Cars exempted because of the governor would carry a distinctive emblem. Mr. Kurzman notes that such a tax would make keeping up with the Joneses too expensive for most people, and the manufacturers will then see the merit of attempting to build small, efficient engines. (With smaller engines, bodies could be less bulky, too, reducing the crowding of the streets and highways.)

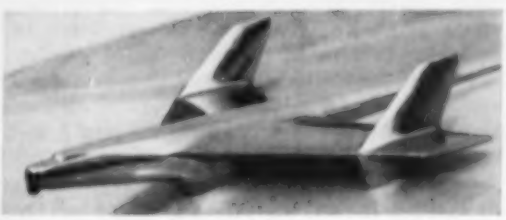
Again we must remind the manufacturers that if they will not correct the situation, it will be corrected for them, and the cost to them and the public will be much greater if governmental authorities must intervene to do what the industry should have the brains and vision to do for itself.

Automatic transmissions

It has been estimated that 93 percent of all the cars produced in 1955 will come equipped with automatic transmissions, and while it may be argued that this is what the public wants, actually the "popularity" is to a great extent a forced one, determined largely by the manufacturers and dealers who make it difficult or seemingly unwise for the consumer to buy cars of certain makes with a standard transmission. While automatic transmissions have been greatly improved, they still have some serious disadvantages. They are not as *efficient* as standard transmissions, and to compensate for the loss of power in the transmission, the engine horsepower capacity had to be increased, giving less economical operation. For unskilled drivers who had difficulty knowing when to change gears, or did it awkwardly, automatic transmissions are a blessing, but the skilled drivers are robbed of the precise control of their car under special or emergency conditions that the standard transmission permitted (e.g., in mud, sand, or snow, and on ice). Under very adverse or slippery conditions that occur in most climates and regions at some time during the year, automatic transmissions fall down badly and are much inferior to standard transmissions in performance, and especially in respect to safety. No attempt has been made to standardize positions of the controls or to provide proper marking and illumination for them; this lack of standardization may well have been a factor in some of the accidents that have occurred due to automatic transmissions.

We advise that even if the extra cost of the automatic transmission is no particular problem to the purchaser, he will often be well advised to buy a car with the old-fashioned transmission, unless there is some very good reason for buying a car with the *Powerglide*, *Fordomatic*, *PowerFlite*, *Dynaflow*, or other automatic drive, or unless he drives all or nearly all the time on city streets or good well-surfaced roads, and does little or no driving under adverse weather conditions (ice, snow, mud, slush).

The adoption by *Buick* of variable pitch blades in the stator of the torque converter is the most noteworthy change in automatic transmissions this year. These blades are mounted so that they automatically rotate through approximately 75 degrees from a low pitch (cruising range) position to a high pitch (high performance) position, with the angular position of the stator blades depending upon the position of the ac-



Upper picture—protruding grille guards of Cadillac (Packard's and some others are similar).
Lower picture—typical dangerous hood ornament.

celerator. When the accelerator pedal is fully depressed (kicked down), the blades move to the high-performance (fast acceleration) position. The accelerating performance of this year's *Buick Special* was found to be improved about 10 percent, but how much of this is due to the new design of the *Dynaflow* transmission is not known; part of the increase is no doubt due to the increase in rated horsepower (from 150 to 188 hp., for example, on the *Buick Special*).

Brakes

In a previous BULLETIN, CR commented that power braking helps in some degree to compensate for the extra dangers presented by higher horsepower. One subscriber took strong objection to this, urging that there was no relationship between horsepower and braking ability. This reasoning entirely overlooked the fact that horsepower *is* indirectly connected to braking ability because the higher horsepower cars are heavier and that because of their higher engine output capabilities they are more than likely to be driven at higher speeds than can ever be safe. The greater the speed and the heavier the car, the more energy is needed to brake it. The load on braking systems is also increased on cars having automatic transmissions, as the braking effect supplied by the engine is greatly reduced compared to that available with the old-fashioned or standard transmission.

In braking, the kinetic energy due to the car's forward motion (which is proportional to the weight of the car and its occupants times the square of the speed) is converted into heat at the brakes, and the problem is to get rid of the heat. If this heat is not dissipated quickly enough, as it cannot be when the amount of braking is considerable, the drum expands and distorts the lining, which then does not make proper contact with the drum. The coefficient of friction of the lining is also greatly reduced when brake application must extend over a considerable period, as in braking from high speed or down a long slope. With the considerable amount of heat produced in the braking operation, a factor known as brake fade (fading away of the braking ability) enters the problem. Increasing the area of the brake lining provides more area from which the heat can escape, and so reduces the tendency to fading, but even the best drum-type brakes as used on current American cars will fade if used for a substantial time, for example on a long steep hill. ***Power brakes will not eliminate brake fading*** or reduce the minimum stopping distance; the latter is set by the conditions of friction between road and tires. The normal stopping distance for a car traveling at 50 miles per hour is about 135 feet unless the wheels are locked, but the car will have traveled about 140 feet in the time that elapses between the driver's perception of the need to apply the brakes and their actual application, so that the total distance traveled before the car comes to a full stop would be around 275 feet, or about a city block. Power brakes can reduce this distance somewhat by enabling the driver, particularly a driver not physically strong, to exert the maximum pressure on the brake pedal more surely than he could, unaided. The danger of power brakes, and it is a very real one, is in emergency stops, where the driver instinctively jams on the brakes; with the power brake, the braking may be so powerful as to stop the rotation of the wheels, throwing the passengers against the windshield and the dash. Power brakes do make driving much easier, but we are inclined to believe that any car equipped with power brakes should also have the protection of a safety belt, for even the best drivers in a sudden grave emergency are likely to press the brake pedal with all available force.

Name of automatic transmission	Cars on which used	Data on Type
Dynaflow	Buick	Torque converter with gears
Powerglide	Chevrolet	" "
Fordomatic	Ford	" "
Merc-O-Matic	Mercury	" "
PowerFlite	Plymouth, Dodge, DeSoto, Chrysler	" "
Ultramatic	Packard, Nash V-8, Hudson V-8	" "
Studebaker	Studebaker	" "
Turbo Drive	Lincoln	" "
Hydra-Matic	Cadillac, Nash, Oldsmobile, Pontiac, Hudson 6	Fluid coupling with gears

Power steering

Basically, there are two kinds of power-assist steering mechanisms now available. One, used

Automatic Transmissions

Control positions	Ratio of torque multiplication to 1						Maximum speed at which down shift can be made, m.p.h.	Name of automatic transmission
	Gears					Converter		
	1st	2nd	3rd	4th	Reverse			
P N D L R	1.82	1.0	—	—	1.82	2.5	40	Dynaflow
P N D L R	1.82	1.0	—	—	1.82	2.1	50	Powerglide
P R N Dr Lo	2.40	1.47	1.0	—	2.0	2.1		Fordomatic
P R N Dr Lo	2.40	1.47	1.0	—	2.0	2.1	69	Merc-O-Matic
R N D L	1.72	1.0	—	—	2.39	2.6	55	PowerFlite
P N D1 D2 L R	1.82	1.0	—	—	1.63	2.9	55	Ultramatic
P N D L R	2.31	1.43	1.0	—	2.1	2.15	60-62	Studebaker
P R N D L	2.4	1.47	1.0	—	2.0	2.1	71	Turbo Drive
	4.08	2.63	1.55	1.0	4.3	—	70	
	3.82	2.63	1.45	1.0	4.3	—	58	
N D1 D2 L R	3.82	2.63	1.45	1.0	4.3	—	65	Hydra-Matic
	4.1	2.63	1.55	1.0	4.62	—	60	

on Chrysler Corporation cars, offers assistance to the driver at all times to an extent approaching 80 percent of the force he would have to exert without the power-steering assist. As a further factor, the steering ratio between steering wheel and front wheels is much less than on cars without power steering; thus the number of turns of the wheel needed to turn from full left to full right is small. This relatively small steering-gear ratio, combined with power assistance at all times, offers very easy and powerful steering and control when parking a car, so long as the engine is running. When the car is being driven at average highway speeds, however, the steering effort required is very small, and as to the lighter cars in the Chrysler Corporation line (*Plymouth* and *Dodge*), the majority of CR's test drivers were of the opinion that power steering was not needed and indeed tended to make these cars *too* easy to steer, so as to make an accident more likely than with the old-fashioned steering. On Ford, General Motors, American Motors, and Studebaker-Packard cars, the steering ratio is about the same on cars equipped with power steering as it is on models without power steering (or it may be slightly less on the former). As a result, when parking, the driver must turn the steering wheel through more turns than on the Chrysler Corporation cars which are equipped with power steering; the steering response is thus "*slower*" on the Ford, General Motors, American Motors, and Studebaker-Packard cars. The turning force required at the wheel rim is greater, too, since the "assist" does not function until a 3-pound effort, approximately, is exerted by the driver. For normal highway driving, the moderate effort required from the driver at all times gives the feeling of better car control with less need for constant correction of car direction. Those who for reasons of serious ill health (e.g., muscular weakness or heart trouble) need to reduce the exertion of steering—particularly a problem in parking—will find that either of the types of power-assisted steering described will be helpful.

Briefly, it would seem that a combination of the two basic systems would be preferable, in which the relatively fast response of Chrysler "Full Time" power steering would be combined with the moderate effort required at all times with the type of power steering used on General Motors cars. We would repeat that on small cars, we think the power-steering accessory is hardly needed unless for special reasons of ill health or subnormal muscular strength.

Tubeless tires

The new tubeless tires contain a lightweight rubber inner liner vulcanized to the carcass instead of the puncture sealant which characterized earlier forms of tubeless tires. The new tire sells at about the same price as a regular tire with its inner tube. The rubber inner liner is not under tension as is the inner tube of the conventional tire. Thus, when a nail or other sharp object punctures the tire, the liner can close around it and prevent air from escaping rapidly. If the nail or other object is withdrawn or comes out of the tire on the road, the air will escape and the tire must be repaired to make it airtight again.

There are, however, premium types of tubeless tires which contain both an inner lining and a puncture sealant. Goodyear's is called *Double Eagle*; it sells for about $25 extra per tire in the 6.70 x 15 size. Firestone's premium is called the *Supreme*. It has an inner liner, a puncture sealant, and a "safety diaphragm" which forms a second air chamber. The *Firestone Supreme* is priced about $30 above the regular tubeless tire in the 6.70 x 15 size.

While the new tubeless tires of the type used as regular equipment on cars are not punctureproof, they do afford a large degree of puncture protection in the sense of making the leak slow rather than rapid and potentially dangerous to the occupants of a car, and thus they give much greater blowout protection than tires with tubes. With tires having an inner tube, the blowout occurs when the tube is chafed by a break in the carcass of the tire until the tube ruptures. Then a violent break or blowout commonly occurs. With the new tubeless tires, this important source of blowout trouble does not exist, and it is claimed that if a break in the tire occurs, the air will escape slowly, giving the driver warning and time to come to a stop before the tire is damaged. Other advantages of tubeless tires compared to conventional tires are: (1) they run cooler and dissipate heat faster; (2) they are lighter in weight, thus reducing the unsprung weight of the car and making for better riding qualities; (3) better impact resistance; (4) improved balance; and (5) somewhat diminished power loss in the tire itself.

The bead of a tubeless tire has circumferential ridges to provide an air seal against the rim flanges; effective sealing requires that the rim be thoroughly clean and free from rust spots and irregularities. The rivets on the rim must be airtight. With tubeless tires, the valve presents special problems, and a tool designed for the purpose is needed to squeeze the valve into place in the rim. The tubeless tire cannot be used with wire wheels because of the difficulty of assuring complete airtightness at the points where the spokes enter the rim.

The disadvantage of tubeless tires is the special servicing they require, and it will undoubtedly be some time before some service station personnel are familiar enough with the problem to be able to repair such tires without some risk of damaging or even of ruining them. (The better servicemen are taking special training in the handling and repair of tubeless tires.) It will be best if the automobile owner, for a year or two, will not trust tubeless tire repairs to anyone who has not considerable background of experience with the work. The technique is similar to that used in repairing the old "single tube" bicycle tires, but removal of the tire from the rim and mounting the tire must be done with extreme care. *The consumer should never permit a service station attendant to mount one of the new tires by using a hammer or rubber mallet, as this may damage the rim-seal ridges, and result in an air leak.*

Gasoline requirements

One adverse effect of the horsepower race has been that many cars now need gasoline of a higher octane value than before—which is definitely to the disadvantage of the consumer. It is said that something like 50 percent of the 1955 models, including the *Chevrolet V-8*, will require premium gasoline. *Chevrolet's* instruction book states "Most gasoline will provide satisfactory performance, but under some conditions such as high temperature or deposit accumulation [accumulation of carbon deposits in the combustion chamber], use of premium gasoline will result in less detonation or 'spark rap.' . . .the compression ratio of the Chevrolet V-8 engine is sufficiently high to fully utilize the higher octane value of premium fuel."

The indications are that when the engine is new and clean the *Chevrolet V-8* can be operated satisfactorily on regular gasoline, but that after 5000 miles or so of use, the *Powerglide*-equipped cars will often need a premium fuel of 85 to 90 octane number; standard transmission cars, 88 to 93 octane number. It is interesting to note that the use of premium gasoline at 3 cents per gallon higher than regular gasoline will, from a cost standpoint, be equivalent to reducing the miles per gallon of the *Chevrolet V-8* from 18 to 16.

A

Cadillac 62. $3977 (factory list price including federal excise tax of $319). *Hydra-Matic* and power steering are standard equipment. Radio, $121; heater, $129; power brakes, $48.

Excellent handling and riding qualities. Workmanship and appointments were in keeping with what one expects in a car in this top-bracket price class.

CR'S FINDINGS ON ROAD TESTS

Equipment on car tested: *Hydra-Matic*, power brakes, power-actuated windows, *Autronic Eye*, radio, heater. **Acceleration times** from 0 to 30 m.p.h., 4.0 sec.; from 0 to 60 m.p.h., 11.0 sec.; from 20 to 50 m.p.h., 6.4 sec.; from 40 to 60 m.p.h., 5.2 sec.; all exceptionally fast (highest acceleration of cars so far tested).

Gasoline mileage under test conditions: at 50 m.p.h., 18.6 m.p.g., not quite so good as last year's model, but it was believed this might improve when the car was run in more. (The car had only a low mileage at time of test and time was not available to accumulate the customary 1500 miles or more before tests were made.)

Riding comfort was excellent under all conditions. The steering was precise, but there was a lack of the normal self-restoring property of the front wheels when coming out of a turn. With power steering inoperative (engine switched off), the steering effort required was not excessive.

Speedometer errors: at indicated speed of 20 m.p.h., actual speed was 19.0 m.p.h.; at 35 m.p.h., 33.5; at 50 m.p.h., 48; at 60 m.p.h., 57.5. **Odometer** was inaccurate by about 1% (100 miles would be shown as 99 miles).

OBSERVATIONS AND CONCLUSIONS

In line with the industry's trend, *Cadillac* has raised rated horsepower from 230 to 250, chiefly by increasing the compression ratio from 8.25 to 1 to 9.1 to 1. Headroom was ample; leg room, adequate, except for the middle passenger in the front seat, who would find the large transmission hump a disadvantage. Two separate heaters supply heated fresh air to the front and by ducts to rear compartment (desirable arrangement). The fresh-air intake was at the cowl, the preferred location, but the blowers must be operated to obtain heat, which is not a desirable arrangement. Cadillac this year continues to eliminate the ammeter and oil pressure gauge, substituting indicator lights (very undesirable, especially in a car at a price that does not warrant any skimping of details: Cadillac could afford to use both lights and meters, if there is some reason that seems to favor charge and oil pressure indicator lights for some users). The large, protruding cigar-shaped front grille guards would seem almost to have been designed with a view toward marking deeply and in a

CADILLAC 62 SPECIFICATIONS

Engine

8 cylinders in "V" arrangement, overhead valves
Bore, 3.8125 in.; stroke, 3.625 in.
Piston displacement: 331 cu. in.
Brake horsepower (rated): 250 at 4600 rpm.
Taxable horsepower: 46.5
Compression ratio: 9.1 to 1 (calls for high-test gasoline)
Cylinder head: cast iron
Automatic choke
Crankcase oil capacity: 5 qt.
Oil filter: partial-flow type
Cooling system: 20-1/3 qt. with heater

Chassis, etc.

Wheelbase: 129 in.
Over-all length: 216 in.
Width: 80 in.
Height: 62 in.
Gear ratio: 3.36 to 1 (3.07 to 1 optional)
Engine revolutions per mile: 2390 (2180)
Tires: 8.00 x 15 tubeless (overloaded), 8.20 x 15 optional (these would be adequate)
Brake area: 222 sq. in.
Brake factor: 43
Frame: channel side members with I beam "X" member, 5 cross members
Minimum road clearance: 6.1 in.
Turning diameter: 43.4 ft.
Front shoulder room: 59.5 in.
Rear shoulder room: 59 in.
Steering factor: 4.8

Other details

Battery: 12-volt 60-amp.-hr.
Gasoline tank: 20 gal.
Windshield wipers: vacuum type
Shipping weight: 4370 lb.
Curb weight of car tested: 4690 lb., 53% on front (less than average, desirable)

Cadillac 62

characteristic way any car that might be hit; from the lowly pedestrian's point of view, they are possibly even more dangerous than the pointed hood ornaments used on most other cars.

A

DeSoto Fireflite V-8 PowerFlite. $2871 (factory list price including federal excise tax of $201). Radio, $99.50; heater, $78; power steering, $113; power brakes, $40.

Considered a very good car, the only serious criticism is insufficient headroom. In the view of several engineers power steering on this car requires too little effort.

CR'S FINDINGS ON ROAD TESTS

Equipment on car tested: *PowerFlite* transmission, power steering, power brakes, power-positioned seat, radio, and heater.

Acceleration times from 0 to 30 m.p.h., 4.8 sec.; from 0 to 60 m.p.h., 13.7 sec.; from 20 to 50 m.p.h., 8.1 sec.; from 40 to 60 m.p.h., 7.0 sec.; all above average, and higher acceleration than on last year's model. **Gasoline mileage under test conditions:** at 50 m.p.h., 15.3 m.p.g., somewhat below average.

DESOTO FIREFLITE V-8 POWERFLITE SPECIFICATIONS

Engine

8 cylinders in "V" arrangement, overhead valves
Bore, 3.72 in., stroke, 3.344 in.
Piston displacement: 291 cu. in.
Brake horsepower (rated): 200 at 4400 rpm.
Taxable horsepower: 44.3
Compression ratio: 7.5 to 1
Cylinder head: cast iron
Automatic choke
Crankcase oil capacity: 5 qt.
Oil filter: shunt type
Cooling system (pressure type): 24 qt. with heater

Chassis, etc.

Wheelbase: 126 in.
Over-all length: 218 in.
Width: 78.5 in.
Height: 61 in.
Gear ratio: 3.54 to 1 (3.73 to 1 with standard transmission)
Engine revolutions per mile: 2560 (2690)
Tires: 7.60 x 15 tubeless (overloaded)
Brake area: 201 sq. in.
Brake factor: 43
Frame: double channel box section side rails
Minimum road clearance: 6.2 in.
Turning diameter: 43.8 ft.
Front shoulder room: 58.5 in.
Rear shoulder room: 58.5 in.
Steering factor: 3.8 with power steering (good)

Other details

Battery: 6-volt 120-amp.-hr.
Gasoline tank: 20 gal.
Windshield wipers: electric
Shipping weight: 3960 lb.
Curb weight of car tested: 4190 lb., 55% on front

Riding comfort was very good under all conditions, and the car handled well on curves. The power steering with which the car was equipped required very little effort to operate; many consider that such light steering is not desirable. With the engine stalled, the car was very hard to steer, due to its low steering ratio.

Speedometer errors: at indicated speed of 20 m.p.h., actual speed was 18.5 m.p.h.; at 35 m.p.h., 33.5; at 50 m.p.h., 47.5. **Odometer** was inaccurate by about 5% (100 miles would be shown as 105 miles).

OBSERVATIONS AND CONCLUSIONS

The engine of this car has a rated power 30 hp. higher than last year's *Firedome*. The compression ratio (7.5 to 1) remains unchanged. Acceleration performance is better than last year's model, which was also good. The dome light is turned on by opening of either rear door or by throwing a switch on the left door post. The courtesy lights (one above the instrument panel and one above the glove compartment) operate when either front door is opened or can be operated by throwing a switch on the panel. The top of the dash had a dull, non-reflecting finish, but there were some reflections in the windshield at night from the instrument panel lighting. Wide and fairly high transmission hump in the floor of the front compartment. The heater was satisfactory; its fresh-air inlet was at the cowl (desirable). Visibility, front and rear, good, but the two rear fenders were not visible to the driver. Leg room was adequate, but headroom, both front and rear, was insufficient for persons above average in height. The *PowerFlite* transmission operated satisfactorily, but the engine ran at very high speed when "kicked down" to low gear during acceleration. This, however, was not as objectionable as on the *Dodge* and *Plymouth*; the difference was probably due to better sound insulation on the *DeSoto*. The power brakes were satisfactory but very sensitive; it was very easy to lock the wheels if braking was done too quickly. The trunk space was adequate, but there was a fairly high lip at the opening which made loading and unloading somewhat inconvenient. The gasoline filler pipe was located on right side instead of customary left side of the car.

A–

Packard Clipper Custom Ultramatic. $3245 (factory list price including federal excise tax of $207). Radio, $99 to $132; heater, $82; power brakes, $37; torsion-bar suspension, $150.

Judged a well-built car of adequate performance. It is suggested that an intending purchaser of a Packard with the new torsion-bar suspension ("Torsion-Level Ride") should drive this car over various types of roads at a number of different speeds to ascertain if the type of ride provided by the new suspension will be fully acceptable to them.

CR'S FINDINGS ON ROAD TESTS

Equipment on car tested: radio, heater, *Ultramatic* transmission, power brakes, torsion-bar suspension.

Acceleration times from 0 to 30 m.p.h., 4.3 sec. (above average); from 0 to 60 m.p.h., 14.2 sec. (average); from 20 to 50 m.p.h., 7.5 sec. (above average); from 40 to 60 m.p.h., 7.8 sec. (above average).

Gasoline mileage under test conditions: at 50 m.p.h., 16 m.p.g. (about average).

Riding comfort: General behavior of the car on the road and stability on curves were excellent. On an average smooth highway, riding comfort was excellent for both front and rear passengers. On rough roads with potholes, ruts, bumps, and humps, on two cars checked by CR, the imperfections in the road were hardly noticeable to riders in the front seat, being very effectively smoothed out into a sort of slow rolling motion, not greatly different from the behavior of other makes of cars on a good concrete highway. The ride in the rear seat was very satisfactory. On a third car, which was tested for riding qualities by a different group of engineers, at low speeds over rutted roads, occupants of the front seat reported a rather choppy ride. This type of ride was *not* obtained in the first cars mentioned when they were driven over rough roads, and it may well be that some element of the suspension system on the third car was not correctly adjusted. Thus it would seem wise to check any *Packard* with torsion-bar suspension, over a goodly length of really rough road, before accepting delivery.

¶These impressions of the *Packard* ride are not to be considered as being based on exhaustive tests, which would require more miles of varied operation than were possible in the time available, and if the report had been held up for more extended studies, the information would have been delayed at least another month before reaching our readers. It should be borne in mind, too, that this *Packard* torsion-bar suspension is a novel and relatively untried mechanism, and there is always the possibility that there may be "bugs" that will require time and experience and some expense to the owner, to work out. The reader who decides to buy this car must, therefore, realize that there is a certain element of risk as with any new or unusual development involving such a radical revision of previous design practices.

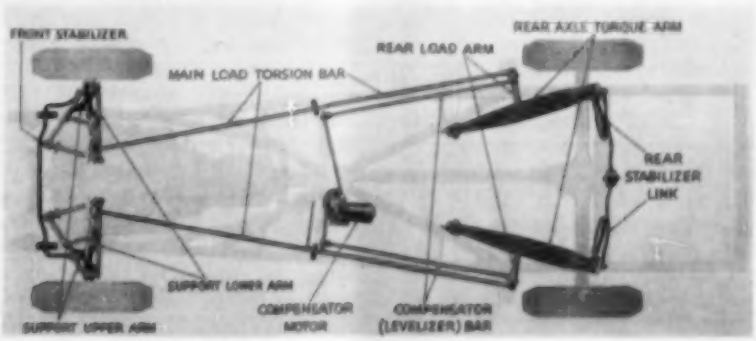
¶As reports reach us from subscribers, we shall keep our readers informed whether this newly developed torsion-bar spring system seems to work out favorably in practice as well as in its preliminary or trial stage. For further comments on the *Packard* suspension, see "OBSERVATIONS AND CONCLUSIONS." Steering was satisfactory except for a slight amount of steering wheel play and the high steering ratio (which required too many turns of the steering wheel). *Packards* this year have large protruding cigar-shaped front grille guards which are very undesirable (see comment on *Cadillac 62*).

Speedometer errors: at indicated speed of 20 m.p.h., actual speed was 17 m.p.h.; at 35 m.p.h., 30; at 60 m.p.h., 49.5; at 70 m.p.h., 57; errors unduly high. **Odometer** had a large error of indication (100 miles would be shown as 113 miles—worst odometer error so far found in CR's tests). These unduly large errors may be due in part to the fact that the car tested was equipped with a 3.54 to 1 instead of the standard 3.23 to 1 rear axle ratio, and the manufacturer might perhaps have failed to change the speedometer gearing to correspond to the lower ratio.

OBSERVATIONS AND CONCLUSIONS

Packard's straight eight engines have been replaced by new V-8 engines which, on the highest priced lines, have the largest displacement of any American engines. (Packard is also supplying V-8 engines for *Nash* and *Hudson*.) Engine noises were low to moderate; wind noises were also low except when ventilating windows were open. Visibility, front and rear, good. Headroom and leg room were adequate (headroom was more than found in most 1955 cars). The transmission hump in the front compartment was too high for seating comfort of an adult center passenger. The fresh-air inlets for the heater were located low at the front grille (undesirable). Packard has continued the undesirable practice of eliminating the ammeter and oil pressure gauge on some models and substituting indicator lights (which give no clue to state of battery charge). The *Twin-Ultramatic* transmission which now has provision for kicking down to low gear, and has two Drive positions, operated very smoothly.

¶The full torsion-bar suspension recently announced by Packard is available on all but the *Clipper DeLuxe* and *Super* and is perhaps the most important innova-



Packard's new torsion-bar suspension system.

PACKARD CLIPPER CUSTOM ULTRAMATIC SPECIFICATIONS

Engine

8 cylinders in "V" arrangement, overhead valves
Bore, 4 in., stroke, 3-1/2 in.
Piston displacement: 352 cu. in.
Brake horsepower (rated): 245 at 4600 rpm.
Taxable horsepower: 51.2
Compression ratio: 8.5 to 1 (requires premium gasoline)
Cylinder head: cast iron
Automatic choke
Crankcase oil capacity: 5 qt.
Oil filter: partial-flow type (optional equipment)
Cooling system (pressure type): 26.5 qt. with heater

Chassis, etc.

Wheelbase: 122 in.
Over-all length: 215 in.
Width: 78 in.
Height: 62 in.
Gear ratio: 3.9 to 1 (3.23 to 1 with Ultramatic, 3.54 to 1 optional)
Engine revolutions per mile: 2850 (2360, 2590)
*Tires: 7.60 x 15 tubeless (overloaded)**
Brake area: 192 sq. in.
Brake factor: 41
Frame: channel side members, cross members, and "X" member
Minimum road clearance: 5-3/4 in.
Turning diameter: 43 ft. (41 ft. with power steering)
Front shoulder room: 57 in.
Rear shoulder room: 55-1/2 in.
Steering factor: 5.9 (high)

Other details

Battery: 12-volt 60-amp.-hr.
Gasoline tank: 20 gal.
Windshield wipers: vacuum type
Shipping weight: 3915 lb.
Curb weight of car tested: 4175 lb., 54% on front (about average)

*6 ply available as optional equipment, not overloaded.

tion of this year's cars. In this, two main torsion bars take over the functions of the customary front coil springs and rear leaf springs, which are eliminated. In addition, there are two half-length load-compensating torsion bars operated by an electric motor which operates to keep the car on an even keel regardless of distribution of passenger load. A manually operated switch is provided on the instrument panel to stop the functioning of the load-compensating bars when one is changing a tire. It is also important to switch the device off when the car is parked, to prevent children or adults, with a yen to experiment, from causing operation of the leveling device by standing on and stepping off the bumpers. This operation, repeated often enough, might run down a battery that was not well charged.

¶A switch in the control circuit stops the electric motor leveling action after it has brought the car to the correct position. When passengers alight from the rear of the car, the car assumes a forward tilted position for a period of 6 seconds or more, provided a control switch on the dash is in the "on" position; then the electric motor operates to bring the car back to a level position. The leveling device operates only when there is a *change* in the loading of a car or in the distribution of the load. Thus, the only time it will need to operate when actually traveling with a given number and distribution of passengers, or load, is when suficient gasoline has been consumed to make the rear end lighter by a certain amount, which causes the leveling device to go into action. The change in weight distribution that occurs when the brakes are applied does not operate the automatic leveler, as the device is wired through the special stop-light switch so that the leveling motor is not activated when the brake pedal is depressed. Two advantages are claimed for this torsion-bar system: that it provides increased tire traction when the car is being accelerated and that it provides consistent aiming of the headlights at night, regardless of the distribution of load in the car. The power brakes on this car were not as smooth in action as those on other cars tested by CR; the driver could not sense exactly when the brake action would occur, and then at times there was excessive braking action. The jack provided with the car was, in CR's opinion, not of a safe design.

A–

Plymouth Belvedere V-8 PowerFlite 167 hp. The *Plymouth* previously reported by Consumers' Research (February 1955) was equipped with an engine rated at 157 hp. This has been discontinued and the car is now offered with the engine rated at 167 hp. as standard equipment (the 167 hp. engine was previously available as optional equipment).

	Plymouth PowerFlite		Chevrolet V-8 Powerglide	Ford V-8 Fordomatic
	167 hp.	157 hp		
Acceleration from 0 to 30 m.p.h.	5.2 sec.	6.8 sec.	4.4 sec.	4.8 sec.
Acceleration from 0 to 60 m.p.h.	15.3	19.4	14.0	14.4
Acceleration from 20 to 50 m.p.h.	8.3	10.5	7.3	8.5
Acceleration from 40 to 60 m.p.h.	8.1	10.0	7.9	7.8
Miles per gallon at 50 m.p.h.	15.4	15.7	18.0*	16.3

*See section on "Gasoline requirements."

In this engine, the bore has been increased from 3.44 to 3.56 in. and the piston displacement from 241 to 260 cu. in. For other details, see February issue. As the results in the table on page 16 show, the acceleration performance of the 167-rated-hp. engine is much better and the performance of the *Plymouth*, while not quite as good as that of *Ford* and *Chevrolet*, is considered ample to meet all reasonable requirements.

Explanation of listings in table

Brake factor is a number indicative of the probable relative life of brake linings; a high brake factor is important from the standpoint of safety in use of the car, and probable low cost of brake maintenance. Cars with automatic transmissions require brakes that have a longer life built into them than cars with "standard gearshifts," because the reduced amount of engine braking available with automatic transmissions puts an extra burden on brakes and tends to increase the wear on brake linings. (Overdrive, with freewheeling, likewise puts an extra burden and extra wear on brakes.) The brake factor figures are obtained by dividing the total area of the brake linings in square inches by the shipping weight of the car plus the weight of five passengers at 150 pounds each, or 750 pounds (600 pounds for the *Nash Rambler*—5-passenger car), and multiplying by 1000 (to avoid fractional numbers).

Engine revolutions per mile is considered to give a rough relative measure of the probable or expected rate of engine wear, when the engines are of similar design.

Estimated depreciation is based on the difference between the original factory delivered price of the most nearly comparable 1954 car and the turn-in value of that car as given in the so-called Official Used Car Guide for January 1955, published by the National Automobile Dealers Used Car Guide Co., 1800 H St., N.W., Washington 5, D.C. (Similar guides are available from National Market Reports Inc., 900 S. Wabash Ave., Chicago 5.) The estimates of depreciation, *very low*, *low*, *medium*, and *high*, are indications of *relative* depreciation of the various cars under normal conditions. (They are based on numerical averages for 16 states east of the Mississippi River, and the District of Columbia, but, in a relative sense, will be useful and applicable generally throughout the country.)

Steering factor is believed to be a more accurate and useful method of expressing the properties of the steering mechanism than the "steering gear ratio" usually given. The steering factor is obtained by multiplying the number of turns of the steering wheel to turn the front car wheels from full right to full left by the length of the wheelbase in inches, and dividing the product by 100 times the angle turned by the car wheels in radians. A number that is too high is undesirable from a safety standpoint (slow steering response); a low number (except in the case of cars with power-assisted steering) would indicate hard steering at low speeds and relatively great physical effort required of the driver in parking.

Manufacturers' rated horsepower at ____revolutions per minute is the figure claimed by the manufacturer. The actual maximum brake horsepower delivered to the rear axle will be a great deal less, as manufacturers' brake horsepower figures are nearly always based on performance of the "bare engine," which may be twice the horsepower that can actually be delivered to the rear wheels. (See "High vs. moderate horsepower.")

Hp. per cu. in. displacement is a rough measure of relative engine efficiency in use of fuel.

Acceleration tests are made by approaching a starting line, in high gear, at each of two constant speeds, one of 20 and one of 40 miles per hour, then immediately pressing the accelerator pedal to the floor. The ranges of 20 to 50 miles per hour and 40 to 60 miles per hour have been selected to give an indication of the ability of the particular car to pass another slower-moving car or truck on the road. In cars with standard transmissions, the gear is not changed during the test runs, but in the 0 to 60 miles per hour runs, gears were changed at the car speeds at which the engine developed maximum horsepower. Comments on acceleration values (above average, etc.) are without respect to price, size, or weight of the car. The figures were obtained on cars furnished by authorized dealers, and serviced and adjusted by them. Results should be representative of what the average consumer can obtain (on cars not specially tuned by experts to give maximum acceleration).

Miles-per-gallon figures were obtained with one of the usual miles-per-gallon volumetric testers (1/10 gallon) on a level road at a constant speed of 50 miles per hour. The miles per gallon obtained in normal driving should, as a rule, be between seven tenths (0.7) and nine tenths (0.9) of these figures (with a mean around 0.8), depending, of course, on the type of driving and driving speeds.

Recommendations in eight price groups

With several makers offering 6-cylinder or V-8 engines for their entire lines and offering standard, overdrive, or automatic transmissions, the consumer has a wide choice. For example,

(*Continued on page 20*)

MAKE AND MODEL	Estimated Depreciation	Wheelbase, Inches	Over-all Length, Inches	Over-all Width, Inches	Turning Diameter, Feet	Minimum Road Clearance, In.	Manufacturers' Rated Horsepower at Revolutions per Minute	Maximum Torque lb. ft. at rpm.	Displacement, cu. in.	Hp. per cu. in. Displacement	Rated hp. per 100 lb. Wgt	Standard Compression Ratio	Engine to Rear Wheels Gear Ratio	
													Standard Trans.	Automatic Trans. or Optional Ratio
Buick Special	Med.	122	207	76	41.5	6.3	188 @ 4800	256 @ 2400	264	.71	42	7.5	3.9	3.6
Century	Med.	122	207	76	41.5	6.6	236 @ 4600	330 @ 3000	322	.73	52	8.4	3.9	3.4
Super	Med.	127	216	80	43.0	6.6	236 @ 4600	330 @ 3000	322	.73	48	8.4	3.9	3.4
Roadmaster	Med.	127	216	80	43.0	6.8	236 @ 4600	330 @ 3000	322	.73	47	9.0	—	3.4
Cadillac 62	V.Low	129	216	80	43.5	6.1	250 @ 4600	345 @ 2800	331	.75	49	9.0	—	3.36
60S	V.Low	133	227	80	45.0	6.1	250 @ 4600	345 @ 2800	331	.75	47	9.0	—	3.36
75	V.Low	150	237	80	51.5	6.7	250 @ 4600	345 @ 2800	331	.75	43	9.0	—	3.77
Chevrolet 6	Med.	115	196	74	38.0	6.5	123 @ 3800	207 @ 2000	236	.52	31	7.5	3.7	4.11
6 Powerglide	Med.	115	196	74	38.0	6.5	136 @ 4200	209 @ 2200	236	.58	34	7.5	—	3.55
V-8	•	115	196	74	38.0	6.5	162 @ 4400	257 @ 2200	265	.61	42	8.0	3.7	4.11
V-8 Powerglide	•	115	196	74	38.0	6.5	162 @ 4400	257 @ 2200	265	.61	41	8.0	—	3.55
Chrysler Windsor DeLuxe	Med.	126	219	79	44.0	6.2	188 @ 4400	275 @ 2400	301	.63	40	8.0	3.73	3.54
New Yorker DeLuxe	High	126	219	79	44.0	6.5	250 @ 4600	340 @ 2800	331	.76	51	8.5	—	3.36
Imperial	Med.	130	223	79	45.0	6.2	250 @ 4600	340 @ 2800	331	.76	47	8.5	—	3.54
DeSoto Firedome	Med.	126	218	78	44.0	6.3	185 @ 4400	245 @ 2800	291	.64	40	7.5	3.9	3.73
Fireflite	Med.	126	218	78	44.0	6.2	200 @ 4400	274 @ 2800	291	.69	43	7.5	3.73	3.54
Dodge 6	Med.	120	212	75	43.0	5.0	123 @ 3600	194 @ 1600	230	.54	30	7.4	3.9	3.73
Royal V-8	Med.	120	212	75	42.5	5.0	175 @ 4400	240 @ 2400	270	.65	42	7.6	3.73	3.54
Custom Royal V-8	Med.	120	212	75	42.5	5.0	183 @ 4400	245 @ 2400	270	.68	43	7.6	3.73	3.54
Ford 6	Med.	115.5	199	76	41.0	6.5	120 @ 4000	195 @ 2400	223	.54	31	7.5	3.89	4.11
6 Fordomatic	Med.	115.5	199	76	41.0	6.5	120 @ 4000	195 @ 2400	223	.54	30	7.5	—	3.31
V-8	Low	115.5	199	76	41.0	6.5	162 @ 4400	258 @ 2200	272	.60	41	7.6	3.78	3.89
V-8 Fordomatic	Med.	115.5	199	76	41.0	6.5	162 @ 4400	258 @ 2200	272	.60	40	7.6	—	3.31
Hudson Wasp 6	High	114.5	202	78	39.5	•	115 @ 4000	158 @ 1400	202	.57	29	7.5	4.1	3.6
Hornet 6	High	121.5	209	78	42.5	•	160 @ 3800	264 @ 1800	308	.52	38	7.5	4.1	3.15
Hornet V-8	High	121.5	209	78	42.5	•	208 @ 4200	300 @ 2600	320	.65	46	7.8	—	3.54
Lincoln Custom	Low	123	216	78	45.5	7.4	225 @ 4400	342 @ 2500	341	.66	47	8.5	—	3.07
Mercury Monterey	Low	119	206	77	42.5	6.6	188 @ 4400	274 @ 2500	292	.64	44	7.6	3.73	3.15
Nash Rambler 6 2-door	Med.	100	178	74	36.0	•	90 @ 3800	150 @ 1600	196	.46	29	7.3	3.77	3.3
Rambler 6 4-door	Med.	108	186	74	38.0	•	90 @ 3800	150 @ 1600	196	.46	28	7.3	3.77	3.3
Statesman 6	Med.	114.5	202	78	43.0	•	100 @ 3800	155 @ 1600	196	.51	26	7.5	4.4	3.6
Ambassador V-8	Med.	121.5	209	78	44.5	•	208 @ 4200	300 @ 2600	320	.65	46	7.8	—	3.54
Oldsmobile 88	Low	122	204	78	42.0	6.3	185 @ 4000	320 @ 2000	324	.57	41	8.5	3.42	3.07
Super 88	Low	122	204	78	42.0	6.3	202 @ 4000	332 @ 2400	324	.62	45	8.5	3.42	3.23
98	Low	126	213	78	43.0	6.2	202 @ 4000	332 @ 2400	324	.62	44	8.5	3.42	3.42
Packard Clipper DeLuxe	Med.	122	215	78	43.0	•	225 @ 4600	325 @ 2400	320	.70	51	8.5	3.9	3.23
Clipper Custom	Med.	122	215	78	43.0	5.8	245 @ 4600	355 @ 2800	352	.70	52	8.5	3.9	3.54
5580	Med.	127	219	78	45.0	•	260 @ 4600	355 @ 2400	352	.74	51	8.5	—	3.07
Plymouth Savoy 6	High	115	204	75	40.0	5.4	117 @ 3600	194 @ 1600	230	.51	30	7.4	3.73	4.1
Savoy 6 PowerFlite	High	115	204	75	40.0	5.4	117 @ 3600	194 @ 1600	230	.51	29	7.4	—	3.73
Savoy V-8	•	115	204	75	40.5	5.6	167 @ 4400	231 @ 2400	260	.64	42	7.6	3.73	4.1
V-8 PowerFlite	•	115	204	75	40.5	5.6	157 @ 4400	217 @ 2400	241	.65	38	7.6	—	3.54
V-8 PowerFlite	•	115	204	75	40.5	5.6	167 @ 4400	231 @ 2400	260	.64	41	7.6	—	3.54
Pontiac Chieftain V-8	Low	122	203	75	42.5	6.7	180 @ 4600	264 @ 2400	287	.63	42	8.0	3.64	3.08
Star Chief Hydra-Matic	Med.	124	210	75	43.0	6.7	180 @ 4600	264 @ 2400	287	.63	41	8.0	—	3.23
Studebaker Champion 6	Med.	116.5	202	71	39.5	6.5	101 @ 4000	152 @ 1800	186	.54	28	7.5	4.1	3.54
Commander V-8	Med.	116.5	202	71	39.5	7.3	140 @ 4500	202 @ 2800	224	.62	37	7.5	4.1	3.54
President V-8	Med.	120.5	206	71	41.0	7.3	175 @ 4500	250 @ 3000	259	.68	45	7.5	3.92	3.54

•—Information not available V.Low—Very Low (on a percentage basis) Med.—Medium

Engine Revolutions per Mile									Test Data											
									Acceleration Time in Seconds											
Standard Trans.	Automatic Trans. or Optional Ratio	Shipping Weight, lb.	Percentage of Weight on Front	Tire Size	Percent Overload on Tires	Brake Area, sq. in.	Brake Factor	Steering Factor	0 to 30 m.p.h.		0 to 60 m.p.h.		20 to 50 m.p.h.		40 to 60 m.p.h.		M.p.g. at 50 m.p.h.	Equipment on Car Tested	MAKE AND MODEL
2920	2700	3740	54.5	7.10 x 15	13	185	41	5.1	6.0	ba	17.6	a	9.3	a	9.1	a	17.3	2,3	*Buick Special*
2870	2500	3810	•	7.60 x 15	—	208	46	•	•	•	•	•	•	•	•	•	•		*Century*
2870	2500	4140	•	7.60 x 15	11	208	43	•	•	•	•	•	•	•	•	•	•		*Super*
—	2460	4280	54	8.00 x 15	8	219	44	5.8	5.7	a	13.6	aa	6.9	aa	6.3	aa	19.0	2,3	*Roadmaster*
—	2390	4370	53	8.00 x 15	10	222	43	4.8	4.0	aa	11.0	aa	6.4	aa	5.2	aa	18.6	2,3	*Cadillac 62*
—	2390	4540	•	8.00 x 15	14	222	42	•	•	•	•	•	•	•	•	•	•		*60S*
—	2660	5015	•	8.20 x 15	—	234	41	•	•	•	•	•	•	•	•	•	•		*75*
2790	2170	3180	53	6.70 x 15	6	158	40	4.5	•	•	19.9	ba	12.0	a	10.8	ba	22.1	1	*Chevrolet 6*
—	2680	3275	•	6.70 x 15	9	158	39	4.5	•	•	•	•	•	•	•	•	•		*6 Powerglide*
2790	2170	3150	52	6.70 x 15	—	158	40	4.5	•	•	12.6	aa	10.5	a	7.2	aa	19.7		*V-8*
—	2680	3245	52.5	6.70 x 15	8	158	40	4.5	4.4	aa	14.0	a	7.3	aa	7.9	aa	18	2	*V-8 Powerglide*
2690	2560	3920	•	7.60 x 15	7	201	43	•	•	•	•	•	•	•	•	•	•		*Chrysler Windsor DeLuxe*
—	2380	4160	•	8.00 x 15	6	201	41	•	•	•	•	•	•	•	•	•	•		*New Yorker DeLuxe*
—	2470	4560	•	8.20 x 15	8	201	38	•	•	•	•	•	•	•	•	•	•		*Imperial*
2820	2690	3870	•	7.60 x 15	6	201	43	•	•	•	•	•	•	•	•	•	•		*DeSoto Firedome*
2690	2560	3940	55	7.60 x 15	8	201	43	3.8	4.8	aa	13.7	aa	8.1	aa	7.0	aa	15.3	2,3	*Fireflite*
2920	2790	3295	•	6.70 x 15	9	158	39	•	•	•	•	•	•	•	•	•	•		*Dodge 6*
2730	2590	3425	•	7.10 x 15	—	174	42	•	•	•	•	•	•	•	•	•	•		*Royal V-8*
2730	2590	3485	57	7.10 x 15	7	174	41	3.7	4.9	aa	14.3	a	8.1	aa	7.4	aa	16.8	2,3	*Custom Royal V-8*
2930	2170	3125	56.5	6.70 x 15	—	192	50	4.5	•	•	19.9	ba	13.4	ba	10.7	ba	18.7		*Ford 6*
—	2490	3210	•	6.70 x 15	7	192	48	4.5	•	•	•	•	•	•	•	•	•		*6 Fordomatic*
2840	2050	3240	57.5	6.70 x 15	8	192	48	4.3	4.8	aa	•	•	11.4	a	8.5	a	16.6		*V-8*
—	2490	3325	•	6.70 x 15	10	192	47	4.3	4.8	aa	14.4	a	8.5	a	7.8	aa	16.3	2	*V-8 Fordomatic*
3040	2670	3255	•	6.70 x 15	8	155	39	•	•	•	•	•	•	•	•	•	•		*Hudson Wasp 6*
2980	2290	3495	•	7.10 x 15	7	192	45	•	•	•	•	•	•	•	•	•	•		*Hornet 6*
—	2570	3805	•	7.10 x 15	15	192	42	•	•	•	•	•	•	•	•	•	•		*Hornet V-8*
—	2190	4030	•	8.00 x 15	—	208	44	•	•	•	•	•	•	•	•	•	•		*Lincoln Custom*
2750	2320	3530	56	7.10 x 15	8	191	45	4.7	4.9	aa	12.9	aa	8.3	aa	6.4	aa	17.1	2	*Mercury Monterey*
2900	2530	2515	•	6.40 x 15	—	104	33	•	•	•	•	•	•	•	•	•	•		*Nash Rambler 6 2-door*
2900	2530	2630	•	6.40 x 15	—	104	32	•	•	•	•	•	•	•	•	•	•		*Rambler 6 4-door*
3260	2670	3135	•	6.70 x 15	—	155	40	•	•	•	•	•	•	•	•	•	•		*Statesman 6*
—	2570	3795	•	7.10 x 15	15	192	42	•	•	•	•	•	•	•	•	•	•		*Ambassador V-8*
2530	2270	3710	•	7.10 x 15	13	192	43	•	•	•	•	•	•	•	•	•	•		*Oldsmobile 88*
2470	2330	3760	55.5	7.60 x 15	—	192	43	4.8	4.3	aa	14.9	a	8.8	a	8.4	a	16.7	2,3	*Super 88*
2470	2470	3860	•	7.60 x 15	6	192	42	•	•	•	•	•	•	•	•	•	•		*98*
2850	2360	3700	•	7.60 x 15	—	192	43	•	•	•	•	•	•	•	•	•	•		*Packard Clipper DeLuxe*
2850	2590	3915	54	7.60 x 15	7	192	41	5.9	4.3	aa	14.2	a	7.5	aa	7.8	aa	16	2	*Clipper Custom*
—	2200	4355	•	8.00 x 15	10	208	42	•	•	•	•	•	•	•	•	•	•		*5580*
2790	2150	3155	54	6.70 x 15	—	158	40	4.3	•	•	21.1	ba	14.0	ba	11.1	ba	18.4		*Plymouth Savoy 6*
—	2790	3220	•	6.70 x 15	7	158	40	4.3	•	•	•	•	•	•	•	•	•		*Savoy 6 PowerFlite*
2790	2150	3265	53.5	6.70 x 15	9	166	41	5.1	•	•	15.8	a	10.6	a	7.5	aa	17.1		*Savoy V-8*
—	2650	3330	56	6.70 x 15	10	166	41	3.5	6.8	ba	19.4	ba	10.5	a	10.0	ba	15.7	2,3	*V-8 PowerFlite*
—	2650	3330	•	6.70 x 15	10	166	41	3.5	5.2	a	15.3	a	8.3	aa	8.1	a	15.4	2,3	*V-8 PowerFlite*
2670	2260	3510	•	7.10 x 15	8	178	42	•	•	•	•	•	•	•	•	•	•		*Pontiac Chieftain V-8*
—	2370	3670	55	7.10 x 15	12	178	40	4.7	4.5	aa	14.7	a	9.2	a	8.1	a	18.5	2,3	*Star Chief Hydra-Matic*
3160	2730	2805	55	6.40 x 15	7	166	47	3.9	6.4	ba	25.3	ba	14.2	ba	14.6	ba	20.8	2	*Studebaker Champion 6*
3090	2670	3065	•	6.70 x 15	—	195	51	•	•	•	•	•	•	•	•	•	•		*Commander V-8*
2900	2620	3165	•	7.10 x 15	—	195	50	•	•	•	•	•	•	•	•	•	•		*President V-8*

aa—above average a—average ba—below average

1—Overdrive 2—Automatic transmission 3—Power steering

Note: A dash (—) in the column "Percent Overload on Tires" means that there is either no overloading or that it is 5% or less.

this year *Ford*, *Chevrolet*, and *Plymouth* each have 18 engine and transmission combinations available, and the consumer can buy the most expensive model in any of the above three makes with 6-cylinder engine and standard transmission for less money than he can obtain the cheapest model in the line with a V-8 engine and automatic transmission. In order that the intending purchaser may obtain a true perspective within each price group, we have listed and rated the more important combinations available in each make. (Ratings of *Hudson*, *Nash*, *Lincoln*, *Chrysler* [the brand, not the maker], and the higher-priced *Studebaker* cars have been omitted; the new models of these cars appeared too late or [*Lincoln*] were sold in relatively very small numbers and so did not warrant inclusion.) The cars listed are *4-door sedans with standard equipment*, or, when so noted, with standard equipment plus automatic transmission.

A rather unusual situation arises in connection with the rating of automobiles. Recent experience has shown that nearly all cars now manufactured in the United States are good cars, and there have been few (except in certain years when some may have been radically redesigned, or represented newcomers to the market) about which there could be much doubt as to their general serviceability and ability to deliver reliable, reasonably comfortable transportation over a substantial period of years. Unfortunately all the current cars have substantially the same faults in design; the several manufacturers keep very close watch on each other, for when one makes a change for appearance or sales appeal, the others usually follow quickly. This is seen in the almost universal adoption of hood ornaments of dangerous design, of "wrap-around" windshields, ever-increasing horsepower, V-8 engines, the use of the same body shell for several cars at different price levels of the same maker, with ingenious variations in color and trim to fool the buyer into thinking the bodies of higher-priced cars are different from lower-priced ones of the same "line." In many important respects, today's automobiles, even the less satisfactory among them, are the result of a generation of the highest type of engineering development and experience, and it is for this reason that a rather high degree of uniformity in performance within the various price ranges exists. With the exception of the *Cadillac 62*, which has a phenomenally low depreciation (estimated at 15 percent), even the figures for depreciation (loss on turn-in) on the various cars fall close together, averaging around 33 percent.

It is for these reasons that nearly all the cars reported received an *A* rating or close to it. The need to use *A*− or *B*+ ratings on cars also arises in the fact that differences as to desirability and reliability of performance of American cars are so narrow as to require closer graduation in rating than would be necessary for household articles (of which very few indeed have achieved such a high stage of engineering development—and similarity of general design and details).

Price group 1 ($1675-1861)

	Base Price plus Federal Excise Tax	Rating
Nash Rambler DeLuxe 6	$1675	•
Chevrolet 150 Special 6	1703	A
Ford Mainline 6	1728	A
Plymouth Plaza 6	1756	A
Studebaker Champion Custom 6	1759	A−
Nash Rambler Super 6	1773	•
Chevrolet 210 6	1794	A
Chevrolet 150 Special V-8	1802	A
Ford Customline 6	1820	A
Ford Mainline V-8	1828	A
Plymouth Savoy 6	1855	A
Plymouth Plaza V-8	1859	A
Studebaker Champion DeLuxe 6	1861	A−

Price group 1 is composed of cars with standard transmission: *Nash Rambler*; the low-priced and medium-priced lines of 6-cylinder *Chevrolet*, *Ford*, and *Plymouth*; the lowest-priced line of *Chevrolet*, *Ford*, and *Plymouth* with V-8 engines, and the lowest- and medium-priced lines of *Studebaker Champion*. The *Nash Ramblers*, which are not full-size cars, are not strictly comparable with the other cars in this price group. With their turning radius reduced this year by 7 feet to be smaller by 2 feet for the two-door than the *Chevrolet*, they appear to be very satisfactory cars for those who need a second car, particularly if a lot of driving is done in congested city traffic. In the full-size cars, first choice is between *Chevrolet* and *Ford*, with *Plymouth* a close third. In all these three makes, the purchaser can obtain the medium-priced 6 for about $100 more than the lowest-priced 6, or the lowest-priced V-8 for about the same price as the medium-priced 6.

Price group 2 ($1881-2143)

	Base Price plus Federal Excise Tax	Rating
Chevrolet 150 Special 6 Powerglide	$1881	A
Studebaker Commander Custom V-8	1889	•

Chevrolet 210 V-8	$1893	A
Chevrolet Bel Air 6	1907	A
Ford Mainline 6 Fordomatic	1908	A
Ford Customline V-8	1920	A
Plymouth Plaza 6 PowerFlite	1934	A–
Ford Fairlane 6	1935	A
Nash Rambler Super 6 Hydra-Matic	1952	*
Plymouth Belvedere 6	1954	A
Plymouth Savoy V-8	1958	A
Nash Rambler Custom 6	1964	*
Studebaker Champion Regal 6	1969	A–
Chevrolet 6 210 Powerglide	1972	A
Chevrolet 150 Special V-8 Powerglide	1980	A
Studebaker Commander DeLuxe V-8	1984	*
Ford Customline 6 Fordomatic	2000	A
Chevrolet Bel Air V-8	2006	A
Ford Mainline V-8 Fordomatic	2008	A
Plymouth Savoy 6 PowerFlite	2033	A–
Ford Fairlane V-8	2035	A
Plymouth Plaza V-8 PowerFlite	2037	A–
Plymouth Belvedere V-8	2057	A
Dodge Coronet 6	2068	A
Chevrolet 210 V-8 Powerglide	2071	A
Studebaker Champion DeLuxe 6 Automatic	2077	B+
Chevrolet Bel Air 6 Powerglide	2085	A
Ford Customline V-8 Fordomatic	2100	A
Ford Fairlane 6 Fordomatic	2115	A
Studebaker Commander Custom V-8 Automatic	2116	*
Plymouth Belvedere 6 PowerFlite	2132	A–
Plymouth Savoy V-8 PowerFlite	2136	A–
Nash Rambler Custom 6 Hydra-Matic	2143	*

*Not rated.

Price group 2 includes most of the *Chevrolet*, *Ford*, and *Plymouth* models except the highest-priced V-8's with automatic transmission. The choice between a 6- and an 8-cylinder car is chiefly a matter of personal preference. Those who want maximum acceleration performance will choose the V-8, while many will be fully satisfied with the somewhat lower performance of the 6-cylinder cars, which sell for about $100 less, have engines that have stood the test of time and experience, offer ample power and speed for normal users, and should give greater gasoline economy than the 8's.

Six or V-8 with standard transmission

First choice: *Chevrolet* or *Ford*, with *Plymouth* or *Dodge Coronet 6* a close third.

Note: CR considers *Chevrolet* and *Ford* (either 6's or 8's) to be about equal in desirability, even though the *Chevrolet 8* may require premium gasoline. (The better gasoline mileage obtained with the *Chevrolet V-8* as compared with *Ford V-8* was sufficient to compensate for the extra cost of the premium gasoline; there are, however, other disadvantages in the use of premium gasoline, which is more heavily leaded [except *Amoco*].) Some of the very early *Chevrolet V-8* engines had excessive oil consumption, partly due to the chrome-plated oil rings which required an excessively long break-in period and in part due to an excessive supply of oil to the valve mechanism. It is said that these conditions were promptly corrected. Owners who have engines using excessive oil can have an oil deflector installed; if that does not solve the problem, new oil rings will be installed, without charge, by their *Chevrolet* dealers.

Six or V-8 with automatic transmission

First choice: *Chevrolet* or *Ford*; third choice, *Plymouth* (*Plymouth's* transmission is not considered as desirable as that of *Chevrolet* or *Ford*). See preceding note on this page regarding the gasoline requirement of *Chevrolet*.

Price group 3 ($2171-2383)

	Base Price plus Federal Excise Tax	Rating
Dodge Coronet V-8	$2171	A
Chevrolet Bel Air V-8 Powerglide	2184	A
Nash Statesman 6 Super	2185	*
Studebaker Champion Regal 6 Automatic	2185	B+
Studebaker Commander DeLuxe V-8 Automatic	2211	*
Ford Fairlane V-8 Fordomatic	2215	A
Plymouth Belvedere V-8 Power-Flite	2235	A–
Mercury Custom V-8	2242	A
Dodge Coronet 6 PowerFlite	2246	A–
Buick Special V-8	2256	A
Hudson Super Wasp	2260	*
Pontiac Chieftain V-8 860	2279	A
Studebaker President DeLuxe V-8	2281	*
Dodge Royal V-8	2285	A
Oldsmobile 88 V-8	2322	A
Dodge Coronet V-8 PowerFlite	2349	A–
Nash Statesman 6 Custom	2355	*
Nash Statesman 6 Super Hydra-Matic	2364	*
Mercury Monterey V-8	2365	A
Pontiac Chieftain V-8 870	2383	A

*Not rated.

Price group 3. This group comprises the most expensive line of *Chevrolet*, *Ford*, and *Plymouth* with V-8 engines and automatic transmissions, and *Studebaker's* medium- and higher-priced line with automatic transmission, competing with such cars as *Buick Special*, *Dodge V-8*, *Mercury*, *Oldsmobile 88* (with regular transmission).

Cars with standard transmissions

First choice, *Oldsmobile 88*; second choice, *Buick Special*; third choice, *Pontiac, Dodge, or Mercury.*

Cars with automatic transmissions

First choice, *Chevrolet* or *Ford*; third choice, *Plymouth.*

Price group 4 ($2420-2691)

	Base Price plus Federal Excise Tax	Rating
Pontiac Star Chief Custom V-8	$2420	A
Hudson Wasp Custom	2430	*
Mercury Custom V-8 Merc-O-Matic	2431	A
Hudson Super Wasp Hydra-Matic	2439	*
Nash Ambassador 6 Super	2445	*
Dodge Custom Royal V-8	2448	A
Buick Special V-8 Dynaflow	2449	A
DeSoto Firedome V-8	2453	A
Pontiac Chieftain 860 Hydra-Matic	2457	A
Oldsmobile Super 88	2458	A
Dodge Royal V-8 PowerFlite	2463	A–
Buick Century V-8	2498	A
Studebaker President DeLuxe V-8 Automatic	2508	*
Hudson Hornet 6 Super	2530	*
Nash Statesman Custom Hydra-Matic	2534	*
Mercury Monterey V-8 Merc-O-Matic	2554	A
Packard Clipper DeLuxe	2556	A–
Pontiac Chieftain 870 Hydra-Matic	2561	A
Pontiac Star Chief Custom Hydra-Matic	2598	A
Chrysler Windsor DeLuxe	2605	*
Hudson Wasp Custom 6 Hydra-Matic	2609	*
Nash Ambassador 6 Super Hydra-Matic	2624	*
Dodge Custom Royal V-8 PowerFlite	2626	A–
Oldsmobile Super 88 Hydra-Matic	2636	A
Nash Ambassador 6 Custom	2640	*
DeSoto Firedome V-8 Power-Flite	2642	A
Packard Clipper Super	2656	A–
DeSoto Fireflite V-8	2682	A
Buick Century V-8 Dynaflow	2691	A

*Not rated.

Price group 4. First choice, *Oldsmobile Super 88*; second choice, *Buick Century*; third choice, *DeSoto.*

Price group 5 ($2709-2980)

	Base Price plus Federal Excise Tax	Rating
Hudson Hornet 6 Super Hydra-Matic	$2709	*
Hudson Hornet 6 Custom	2725	*
Nash Ambassador V-8 Super	2740	*
Oldsmobile 98	2783	A
Hudson Hornet V-8 Super	2790	*
Chrysler Windsor DeLuxe V-8 PowerFlite	2794	*
Nash Ambassador 6 Custom Hydra-Matic	2819	*
Buick Super V-8	2826	A
DeSoto Fireflite V-8 PowerFlite	2871	A
Hudson Hornet 6 Custom Hydra-Matic	2904	*
Nash Ambassador V-8 Custom	2930	*
Nash Ambassador V-8 Super Ultramatic	2939	*
Oldsmobile 98 Hydra-Matic	2961	A
Hudson Hornet V-8 Super Hydra-Matic	2969	*
Hudson V-8 Custom	2980	*

*Not rated.

Price group 5. First choice, *Oldsmobile 98*; second choice, *Buick Super*; third choice, *DeSoto.*

Price group 6 ($3129-3439)

	Base Price plus Federal Excise Tax	Rating
Nash Ambassador V-8 Custom Ultramatic	$3129	*
Hudson V-8 Custom Hydra-Matic	3159	*
Packard Clipper Custom	3245	A–
Buick Roadmaster	3274	A
Chrysler New Yorker V-8	3439	*

*Not rated.

Price group 6. First choice, *Buick Roadmaster.*

Price group 7 ($3563-4738)

	Base Price plus Federal Excise Tax	Rating
Lincoln Custom	$3563	*
Lincoln Capri	3752	*
Cadillac 62	3977	A
Packard Patrician	4000	A–
Chrysler Imperial V-8	4428	*
Cadillac 6019	4738	A

*Not rated.

Price group 7. First choice, *Cadillac 62.*

Price group 8

	Base Price plus Federal Excise Tax	Rating
Cadillac 75	$6187	A

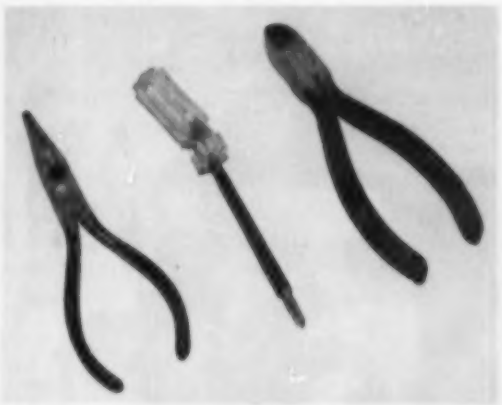
Insulating Coating for Tool Handles

"Do-It-Yourself" electricians, electronics hobbyists, and others who work with tools occasionally have need of pliers, nippers, wire cutters, or some other tool with insulated handles or blades (e. g., screw driver). A rubber-like coating of good insulating properties can be put on metal tool handles or screw driver blades with *Insul-Plate*, a thick, black liquid which comes in a bottle 4¾ inches deep by 1⅛ inches inside diameter.

The metal to be coated must be cleaned thoroughly and then heated "until sizzling hot." It is then dipped into the *Insul-Plate* for 10 to 30 seconds, removed very slowly, held over a hot stove burner a few seconds to harden, and then cooled in water. With a pair of pliers or similar tool the other handle is coated in the same way; the tool is then put in an oven for 15 minutes at 350° F. Any excess coating can easily be cut loose and peeled from places where it is not wanted.

CR coated the tools shown in the illustration with *Insul-Plate* and put them to use in normal service for 9 months. To check for deterioration, the test was accelerated by subjecting the tools to 110°F heat intermittently for a total of 100 hours and to 150°F for 5 hours. The insulating value of the coating was measured immediately after its application, after 4 months of use, and after each heat test. The minimum insulating value found was 35 megohms (35 million ohms—considered practically an infinite resistance for home use) after the 150° heat test on the wire cutters. The coating on the long-nosed pliers had a resistance of 75 megohms. Prior to the second heat test, the coatings had resistances greater than 100 megohms. (Such results cannot be guaranteed in every case, for the coating may be broken by a fault in application, accident, or rough handling.) CR does not know how long the *Insul-Plate* may be expected to retain its high resistance, but it will probably be at least several years in home use, barring accident or abuse. (Resistance measurements were made by putting the coated handles in a conductive salt water bath and connecting a *Bridge-Megger* insulation tester between the exposed metal of the tool and a copper electrode in the salt water bath.)

Unfortunately, after the handles of one or two tools are coated, the liquid level has receded far enough below the neck of the bottle that very likely the next tool cannot be coated properly. While the *Insul-Plate* can be poured into successively smaller bottles after each coating job, this is likely to be messy and wasteful, and bottles of the proper sizes may not be available. Alternatively, clean pebbles or buckshot or something similar may be dropped into the *Insul-Plate* bottle to raise the liquid level once or twice after use, or if many tools are to be coated, a second bottle may be purchased and used to replenish the first. Because, even with the use of successively smaller bottles, or pebbles in the bottle, only a very few tools can be coated properly, CR tried painting the material on a heated tool handle. This gave very unsatisfactory results in appearance, feel, and insulating properties.



Long-nosed pliers, Phillips screw driver, and wire cutters coated with Insul-Plate. The plastic handle of the screw driver melted when it was hung in the oven to bake the coating on the blade.

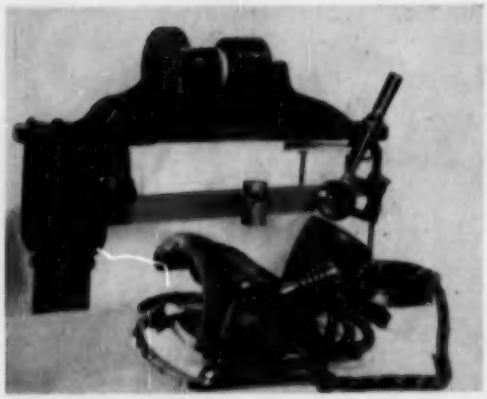
Considering the time required to coat tool handles, the high cost of the material itself and the inevitable waste of some of the *Insul-Plate*, it would probably be better to buy tools with insulated handles than to buy regular tools with the intention of coating them. If the regular tools are already at hand, *Insul-Plate* will make a smooth, attractive insulated handle of good durability, but it cannot be used on tools made in part of plastic without danger of melting the plastic in the process (see screw driver in illustration above).

A. Recommended

Insul-Plate (Ecker Industries, Box 456, Minneapolis) $2. A black plastic (rubber-like) coating for tool handles. Expensive, but it gives the handles a very good "feel" and has excellent insulating properties. 3

Putting a Steam Iron Through

1



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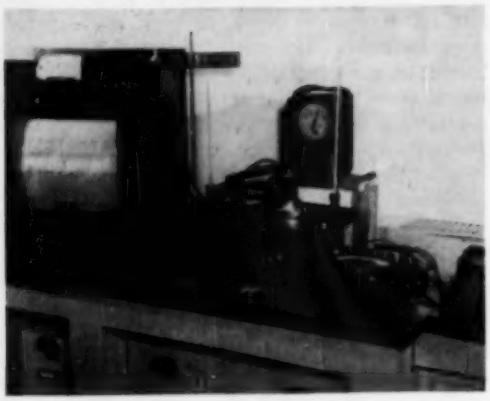

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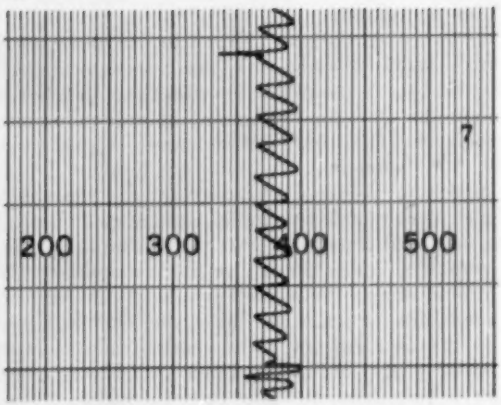

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Its Paces at Consumers' Research

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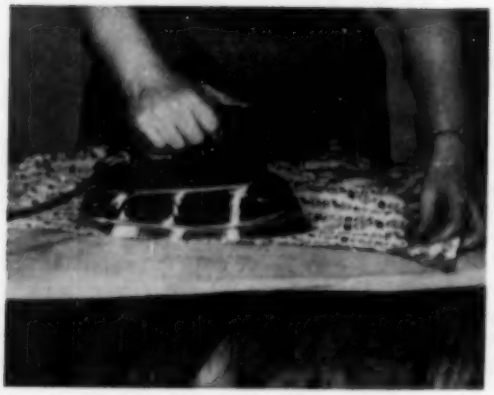


1. *First of all the iron is inspected to judge its construction, and then weighed, both empty and when filled with water.*

2. *The efficiency of an iron is determined by use of a calorimeter, which also gives an idea of how the iron will perform with respect to maintaining its proper working temperature during an actual ironing.*

3. *The rate of steaming is checked by evaporating one-half of the amount of water the iron will hold. The polished aluminum plate (at arrow) fogs when the first steam is emitted from the iron. The length of time the iron will steam with one filling of water is also determined.*

4. *The parts that are likely to be touched in use of the iron are given temperature tests to see whether or not they will become too hot for the housewife's comfort or safety.*

5. *The characteristics of the thermostat are carefully recorded. A good iron will regulate the temperature within a variation of 50°F. This is a typical graph from a temperature recorder showing the temperature regulation afforded by the thermostat of one of the better irons.*

6. *All irons are checked for shock hazard and insulation resistance to be sure that they are safe electrically and likely to remain so in use.*

7. *How stable is an iron on its heel rest? The board was slanted 10°; the irons should not fall over. None did.*

8. *The irons are taken apart to see just how easy it might be to repair them. The Hoover Company suggests that hard water deposits in the steam chamber of its iron can be cleaned out by the housewife. We tried it; they could.*

9. *Practical ironing test—All the irons were given a practical ironing test by students in the home economics practice house of a near-by college.*

Table I—Soleplate Temperatures (°F) of Irons Tested

	Casco N3†		GE F19		GE F30		Hoover 013		Sunbeam S-3	
	Range	*Aver.*	*Range*	*Aver.*	*Range*	*Aver.*	*Range*	*Aver.*	*Range*	*Aver.*
Hi										
Linen	435-470	449	415-477	443	494-545	521	441-494	467	468-546	505
Cotton	401-440	413	365-419	388	417-470	444	348-396	373	410-495	449
Wool	368-396	377	269-321	288	370-412	392	398-448	424	354-431	387
Silk	337-350	340					267-324	291	236-303	266
Rayon			170-220	195	308-348	330	229-283	253	198-261	225
Nylon	240-323	288					196-241	215		
Synthetic					250-300	270				
Low			87-97	92						
Steam					324-365	344	299-350	324	298-369	330

The figures for "Range" in the table are the highest and lowest temperatures measured on the soleplate among the considerable number of temperatures recorded for each temperature setting in CR's tests. The figures under "Aver." are averages of all temperatures recorded.

†Settings for dry ironing.

Understanding the steam iron

Practically all the steam irons on the market nowadays can be used as dry irons, as well as steam irons. If you decide to change from steam ironing to dry ironing, you simply push a switch on some kinds. On others, you must empty out the water or you will have to let the iron steam till it is dry. The kind that permits you to change from steam to dry ironing by use of a switch heats the water drop by drop to turn it into steam. The water reservoir is usually built into the iron itself, though sometimes it is a separate chamber outside the body of the iron. Another kind of steam iron makes steam by heating all the water in a built-in reservoir to boiling, as in a teakettle. For convenience in differentiating between the two types, CR calls this second kind the kettle type, and the other kind the flash-boiler type.

Steam irons produce enough steam for ironing most lightweight fabrics and for steam-pressing of woolens. The steam takes out the wrinkles, and you rarely need to add additional moisture to the fabrics or to use a pressing cloth. For heavy materials, especially cottons and linens, it is usually wise to have the fabrics a little damp before you begin. On the other hand, if a smooth finish is not important, you might be satisfied with the job you get by simply using the steam iron without additional dampening.

What about the water?

You can use tap water in all steam irons if you want to. Any steam iron, however, will be affected in due time by the use of hard water, and if your tap water supply is really hard it would be better if you would take the trouble to get a supply of distilled water from your local automobile service station, auto supply dealer, drugstore, or 5-and-10-cent store. Water that is softened by a mechanical water softener (zeolite softener) is not the answer, for it will leave deposits of sodium salts. You can, however, use one of the small devices sold in appliance stores to make demineralized water which is much like distilled water and will leave no deposits when evaporated.

For a good many women, getting distilled or demineralized water is just too much trouble, and they may prefer to have their irons serviced every two or three years rather than bother to use it. Do not count on the servicing repairs being cheap, however. Steam irons are difficult to repair, according to appliance men, and the work may cost more than you would think. You should remember, too, that you will be inconvenienced by having the iron out of service for two or three weeks, or even longer, while the repair work is being done. The *Hoover* iron, it is interesting to note, carries full and easy-to-follow directions so that the housewife can disassemble the iron herself and clean out the

Sunbeam S-4		Westinghouse IS-521		
Range	*Aver.*	*Range*	*Aver.*	
		470-535	501	Hi
505-533	514	465-517	488	Linen
454-468	462	418-470	443	Cotton
394-427	409	366-412	385	Wool
262-305	284			Silk
209-238	223	244-289 304-346	265 (lo) 323 (hi)	Rayon
				Nylon
				Synthetic
				Low
335-363	346	328-371	346	Steam

deposit from hard water (though more likely she will get the man of the house to do it for her).

What you can learn from the nameplate

On the nameplate of your iron you will find imprinted the rate at which the iron uses electrical energy (the wattage), the current on which it can be used (a.c. or d.c.), and usually the voltage for which the iron is designed. A heating element using 1000 watts or more is an indication that the iron can supply enough heat for heavy ironing. If the iron is marked for a.c. (alternating current) only, you should not use the iron where direct current is supplied, such as in certain areas of a very few cities, or in some hotels with their own power plants, for the thermostat will likely burn out in a very short time. Irons made for use in the United States are made to use alternating current at 110 to 120 volts.

What about proper ironing temperatures?

Every manufacturer seems to have his own idea about what is a good location for the temperature control (thermostat). On some irons the control is located on the top of the handle under the thumb, and on some on top of the shell of the iron itself, below the handle. Wherever it is located, the thermostat control should be convenient to use and should be protected from the heat so that it does not get too hot to touch.

Most controls state temperature in terms of fabric names for dry ironing, and some have a High, Medium, and Low marking, besides. On some irons, the range for steam ironing is marked simply Steam. On the *Casco* iron, however, there are various fabric settings for steam ironing as well as dry ironing. It is helpful if the thermostat has an "off" setting so that you can shut off the current at the iron. Always disconnect the iron at the socket, besides, if you are going to leave it for any period of time.

Unfortunately, on most irons the temperature marking for rayon is wrong. The rayon marking at the low end of the temperature scale was correct before rayon and acetate were officially designated as separate fibers. Nowadays the setting for rayon on the iron really applies to fabrics made of acetate and to other fabrics which are safely ironed only at low temperatures. Rayon can be ironed safely at a setting close to that for cotton.

Because there is some disagreement as to what is the best ironing temperature for some fabrics, and because some thermostats may be set incorrectly, it is well to watch the behavior of a new iron to see how it performs in ironing various fabrics. If you have any doubts about the accuracy of the thermostat setting, be sure to have it checked by an appliance serviceman before too long. The following chart of suggested ironing temperatures for common fabrics may be used as a guide for the setting of thermostats by repairmen:

Control Marking	Usual Temperature Range
Rayon*....225° to 325°F	Average 275°
Silk.....275° to 400°F	Average 350°
Cotton.....350° to 475°F	Average 425°
Linen.....350° to 525°F	Average 450°

*Applies to acetate and some synthetic fibers requiring low ironing temperatures.

The temperatures of the irons tested, at different settings, are given in Table I.

What about the amount of steam?

Much has been said about the difference in steaming between the two kinds of irons—flash boiler and kettle. In one of its tests, CR measured the time that was required to turn one ounce of water into steam. Average times found are reported in Table II. The irons differed significantly in this test; some of them took almost twice as long to turn the ounce of water into steam as some others. There was no correlation, however, between these results

and ironing results. It would be expected, for example, that the *Casco* iron (kettle type) which took four and a half minutes to turn an ounce of water into steam would be less effective in ironing than other irons. Yet the *Casco* proved to be one of the best irons in the ironing test. The *Sunbeam S-3* (flash-boiler type), on the other hand, which took only two and a half minutes to turn an ounce of water into steam and therefore generated almost twice as much steam per minute, gave only fair ironing results. An additional factor to consider here is that the *Sunbeam* gave superheated steam, that is steam hotter than normal for atmospheric pressure. Home economists have noted that steam that is too hot does not dampen materials enough for the best ironing. On the other hand, if an iron is too cool, some of the steam will condense into water and emerge as droplets, which may water-spot the fabric.

Table II—Steaming Time and Steaming Rate of Irons Tested

*Iron**	*Average steaming time, minutes*	*Average time to turn 1 oz. of water into steam, minutes*
Casco N3	48	4.5
GE F19, Travel	9½	4.4
GE F50	23½	2.4
Hoover 013	31	3.2
Sunbeam S-3	100	2.5
Sunbeam S-4	32	3.3
Westinghouse IS-521	27	2.8

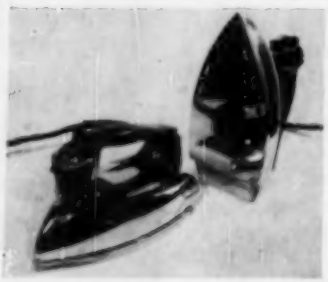
*The *Presto* and two *Universal* irons were not included in this test because of their having failed tests for electrical safety.

A. Recommended

General Electric F19 (General Electric Co., Bridgeport 10, Conn.) $14.95. A flash-boiler travel iron. Had detachable rubber bulb as water container (capacity, 2½ fl. oz.), and an open-end handle which folds down permitting both iron and bulb to fit into a cloth carrying bag. Steaming time, 9½ min. Temperature control on top of shell had settings "low, ray, wool, cot, lin" for dry ironing; "steam" for steam ironing. 120 volts ac-dc, 650 watts. Chrome-plated soleplate; area, 19 sq. in. Weight: 1 lb. 13 oz. without bulb, 2 lb. 2 oz. full. Permanently attached cord, 95½ in. long.

Found convenient as a travel iron and also for ironing small areas. Calorimeter tests indicate that this iron would not be suitable for heavy-duty ironing.

General Electric F50 (General Electric Co.) $17.95. A flash-boiler iron with water reservoir within the iron; capacity, 7 fl. oz. Steaming time, 23½ min. Filled and emptied through opening at front of handle. Temperature control on top of handle had settings "syn, ray, wool, cot,



lin" for dry ironing; and "steam." Had control on top of handle for switching from steam to dry ironing and back again at any time. 115 volts, a.c. only, 1000 watts. Chrome-plated soleplate; area, 30 sq. in. Weight: 3 lb. 8 oz. empty, 3 lb. 15 oz. full. Permanently attached cord, 83 in. long.

Convenient to use and judged one of two best in practical use tests. Handle designed for use by left- and right-handed ironers.

B. Intermediate

There was some shock hazard present on one or both samples of the *Casco N3*, *Hoover 013*, *Sunbeam S-4*, and *Westinghouse IS-521* irons.

Casco N3 (Casco Products Corp., Bridgeport 2, Conn.) $18.95. Asbestos iron rest included. A kettle iron with water reservoir within the iron; capacity, 10 fl. oz. Filled from the top of shell after handle is tipped back, emptied through vents in soleplate, or from "M-T" spout on top of shell (when iron has cooled). Temperature control on

top of shell had "nylon, rayon, silk, wool, cot, and linen" settings for dry ironing; same markings repeated but nylon omitted for steam ironing. Water chamber had to be emptied to change from steam to dry iron-

ing. 110-120 volts, a.c. only, 1000 watts. Weight: 3 lb. 9 oz. empty, 4 lb. 3 oz. full. Steaming time, 48 min., longest of the irons which had the water reservoir within the iron. Aluminum alloy soleplate, 32¼ sq. in. Permanently attached cord, 84 in. long.

Convenient to use; especially convenient to fill, since opening on top of shell was easy to reach and was comparatively large. Somewhat more inconvenient to empty than flash-boiler irons. Some users objected to the noise and feel of water boiling within the iron.

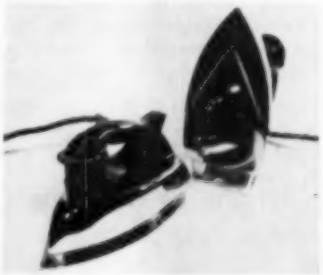
Hoover 013 (The Hoover Co., North Canton, Ohio) $19.95. A flash-boiler iron with water reservoir within the iron; capacity, 7½ fl. oz. Steaming time, 31 min. Filled and emptied through front handle opening. Temperature control at top of shell had settings "nylon, rayon, silk, cotton, wool, linen" for dry ironing; and "steam." Had control on top of handle for switching from steam to dry ironing and back again at any time. 118 volts, a.c. only, 1100 watts. Stainless-steel soleplate, 27½ sq. in. Weight: 3 lb. 10 oz. empty, 4 lb. 2 oz. full. Permanently attached cord, 84 in. long.

Convenient to use and with General Electric judged one of two best in practical use, though users found cord gave some trouble sliding under heel rest when wall outlet was behind the board. Handle designed for use by left- or right-handed ironer. Instructions are given for cleaning out the mineral deposits from the water on the boiler inside, and these were easily followed.

Sunbeam S-3 (Gravity Feed) (Sunbeam Corp., 5600 Roosevelt Rd., Chicago 50) $21.50. A flash-boiler iron with separate

elevated plastic container of 37 fl. oz. capacity (over a quart), which fed water through a plastic tube to the iron, a drop at a time. Rod clamp and wall bracket included so that container could be attached to the ironing board or to the wall, as preferred. Steaming time, about 100 min. on one tank of water. Open handle. Temperature control at front of handle marked "rayon, silk, wool, cotton, linen" for dry ironing; "steam." Had valve on tube from water container for changing from steam to dry ironing and back again. 110-120 volts, a.c. only, 1000 watts. Aluminum alloy soleplate, 29 sq. in. Weight, 3 lb. Permanently attached cord, 99½ in. long.

Convenient to use once it was set up, but might not be considered suitable except for a home with a permanent "ironing center." Open handle bothered some users, who felt insecure with the iron.



Sunbeam S-4 (Sunbeam Corp.) $17.95. A flash-boiler iron with water reservoir within the iron; capacity, 7½ fl. oz. Steaming time, 32½ min. Filled and emptied through front handle opening. Temperature control at front of handle marked "off, ray, silk, wool, cot, lin" for dry ironing; "steam." Had control on top of handle for switching from steam to dry ironing and back again. 110-120 volts, a.c. only, 1000 watts. Weight: 3 lb. 5 oz. empty, 3 lb. 12 oz. full. Aluminum alloy soleplate, 30 sq. in. Permanently attached cord, 76 in. long.

Convenient to use. Handle designed for use by left- and right-handed ironers.

Westinghouse IS-521 (Westinghouse Electric Corp., Mansfield, Ohio) $17.95. A flash-boiler iron with water reservoir within the iron; capacity, 6 fl. oz. Steaming time, 27 min. Had knob on fill opening on top of shell for changing from steam ironing to dry ironing and back again. Temperature control on top of shell marked "lo-ray-hi, wool, cot, lin, hi," for dry ironing; "S" for steam ironing. 115 volts, a.c. only, 1000 watts. Weight: 3 lb. 13 oz. empty, 4 lb. 3 oz. full. Aluminum alloy soleplate, 27½ sq. in. Permanently attached cord, 83 in. long.

Location of filling opening was convenient, but users found the iron tedious to fill, notwithstanding. Knob on filling opening became too hot for comfort, also. Handle designed for use by left- and right-handed ironers, but open handle bothered some users, who felt their hold on the iron was insecure.

• • •

The following iron, included in CR's 1952 study, is still a current model.

Mary Proctor Never-Lift, Model 990 (Proctor Electric Co., Philadelphia 40) $13.95; water reser-

voir, $5. A flash-boiler iron with separate reservoir made of plastic; capacity, 8 fl. oz. Steaming time, 22 min. Temperature control on top of shell marked "rayon, nylon, wool, cotton, linen" for dry ironing; "steam." 115 volts, a.c. only, 1150 watts. Aluminum alloy soleplate, 28 sq. in. Had retracting rod in base to lift ironing surface off the board (iron had no heel rest), released by a trigger under the handle. Weight: 3 lb. 11 oz. without reservoir, 4 lb. 10 oz. with full reservoir.

Convenient to use, although valve on separate water reservoir was found somewhat troublesome to adjust for proper steaming.

C. Not Recommended

Presto S-11 (Presto Industries, Inc., Eau Claire, Wis.) $17.95. Metal and asbestos rest included; iron had no heel rest. A kettle iron with water reservoir within the iron. Filled and emptied through front handle opening. Temperature control on top of shell marked "off, low, med, hi"; iron also had a temperature indicator marked "cool, steam, R, S, W, C, and L" to designate rayon, silk, wool, cotton, and linen. Had to be emptied to change from steam to dry ironing. 110 volts, a.c. only, 1100 watts. As two samples failed electrical tests, other tests were not run on this make.

Universal Stewardess 1675 (Landers, Frary & Clark, New Britain, Conn.) $14.95. A travel iron. Handle folds down, permitting iron to fit into a red plaid taffeta, zipper-closed, carrying bag which in turn fits into a suitcase-shaped cardboard box with handle. A kettle type with reservoir for water within iron. Filled through opening on top of shell, emptied through vents in soleplate. Temperature control on top of shell had settings for "nylon, rayon, silk, wool, cotton, high" for dry ironing; "steam" range for steam ironing and "off." Had to be emptied to change from steam to dry ironing. 115 volts, a.c. only, 575 watts. As two samples failed electrical tests, other tests were not run.

Universal 1801 (Landers, Frary & Clark) $17.95. A flash-boiler iron with water reservoir within the iron. Filled and emptied through opening in front of handle. Temperature control on top of shell had settings for "off, nylon, rayon, silk, wool, cotton, linen, hi," for dry ironing; "steam" for steam ironing. Had switch at side of handle for switching from steam to dry ironing and back again. 110-120 volts, a.c. only, 1100 watts. As two samples failed electrical tests, other tests were not run.

Corrections and Emendations to Consumers' Research Bulletins

Portable Electric Saws
Page 6
Jan. '55 Bulletin

It has been brought to our attention that cases have occurred where the safety guard of a power saw has failed to operate because of chips that become wedged between the guard and the housing; this is especially likely to happen in sawing low-grade or knotty lumber. In one instance where the guard jammed in this fashion, the saw was laid down on the plank while the blade was still rotating; the saw moved back as a wheel running on the plank, injuring the operator seriously. (This could happen even if the saw *seemed* to be running rather slowly when laid down.) The following should therefore be added to the list of precautions given on page 6 of the above-mentioned article: *Never lay a portable electric saw down until the rotation of the blade has* ***completely*** *stopped.*

Central Residential Air Conditioning—II

THE FIRST PART of this article which discussed the general types of central air-conditioning equipment available today, including water-cooled units, air-cooled units, and the heat pump, appeared in the March 1955 BULLETIN, pages 29-32.

Size of unit needed

Correct determination of the size of a cooling unit needed for the home is not an easy matter, for a large number of factors are involved. One of these, of course, is geographical location. In view of the difficulties in determining the size correctly, the problem should be put up to an experienced air-conditioning man. However, for preliminary purposes, and as a rough approximation only, a rule of thumb figure often used in the industry is 1 ton (or 1 horsepower) for every 500 square feet of floor area to be cooled. Actually, in one test of 35 Dallas, Texas, homes, 2-horsepower units proved adequate for 1150-square-foot homes having little shade and considerable areas of glass; it is evident there is a margin of error in the rough basis of calculation referred to.

The selection of a size of cooling equipment is just the reverse of what would be sound practice in heating, in that it is better to have the cooling unit slightly undersized than oversized. If the unit is oversized, the amount of air passing through the coils is likely to be insufficient to keep ice from forming on them; when ice does form, operation is impaired and there is a reduction in the ability of the appliance to remove moisture from the air. Removal of moisture alone normally represents from 20 to 30 percent of the load on a conditioner. For this reason, it is felt that the longer hours of operation with a unit somewhat below the indicated capacity are to be preferred to the shorter-interval, more-frequent operation of a full capacity unit. Consumers' Research found that a unit which had only a fraction of the capacity the manufacturer would recommend for the space in question was surprisingly effective in ameliorating hot-weather conditions and improving livability of a large room (CR BULLETIN, May 1954, "Window Air Conditioners"; see also April 1953 BULLETIN).

Unfavorable moisture condition in a home, due to moisture leakage from the ground through crawl spaces or water-vapor produced by unvented gas appliances, cannot be corrected by use of an air-conditioning unit, if it is undersized, since a very substantial proportion of the capacity of a unit would be needed in condensing and removing the water vapor in the air. (An unvented kitchen range, burning natural gas, will release 11 gallons of water for every 1000 cubic feet of gas burned, for example.) Considerable extra moisture may also be introduced by cooking, bathing, clothes washing, or even by the presence of a small group of people in the house. The presence of 10 extra people in a home might increase the moisture (latent heat) load on the air-conditioning system by 2500 Btu per hour. Their presence also adds approximately the same amount of load due to body heat or a total which is the equivalent of almost ½ ton of refrigeration.

Equipment and installation costs

Central summer air-conditioning equipment may be expected to cost about the same—before installation—as a forced-warm-air heating system. More specifically, inquiries at a recent equipment show, where a number of manufacturers had models on display, indicated average equipment prices before installation of $1000 to $1400 for 2-horsepower models and $1350 to $1500 for 3-horsepower models. Installation costs vary widely according to the amount of duct work involved, or the ease with which the cooling component can be adapted to the air-distribution facilities available. Where cooling towers are used, an additional item of $400 to $1000 is involved, varying according to the size of the tower.

Operating costs

Many factors affect the cost of operating air conditioners. Such natural factors as the local temperature, humidity, and preferences of the occupants are obvious. House construction also plays an important part. Such factors as eave overhang, full insulation, storm sash, cellarless construction, awnings, and natural shade all tend to reduce costs; such power consuming factors as large windows, particularly on the east and west, basements or crawl spaces, warm city water, unfavorable cooling tower locations, many electric lights or appliances, tend to raise the cost of cooling.

The study of 35 Dallas, Texas, homes, as reported in House and Home (March 1954), showed average annual electric costs of $64 and cooling-tower water of $3, with a total average operating cost of $67 a year. The houses were one story, 1150 square feet (30 x 38 feet), fully

insulated, and equipped with 2-horsepower water-cooled units with cooling towers. (In Dallas, electricity is 1.65 cents per kilowatt-hour and water $3.50 per thousand cubic feet.) The highest operating cost in the group was $111.57 for a house with big east and west windows, little shade, and an average indoor temperature of 68°F.

For any given home, it is best to use basic averages and to compute roughly costs from actual local utility rates. For this purpose the following figures are representative.

Electric and Water Consumption per Ton-Hour of Operation

	Electricity, kwhr.	Water, gal./hr.	Water, cu. ft./hr.
Water cooled, city water	1.25*	75	10
Water cooled, cooling tower	1.50**	7.5	1
Air cooled	1.75*	0	0

*Includes ¼ horsepower for air circulation to rooms.
**Includes ½ horsepower for air circulation and cooling tower water circulation.

Example: Assuming electricity at 2½ cents per kilowatt-hour and water at $3.50 per thousand cubic feet, operating costs per hour, per ton of capacity, would approximate 6.7 cents with city water, 4.1 cents with use of a cooling tower, and 4.4 cents for operation with air cooling.

If a cooling tower is used, an additional amount of $20 to $30 should be added for cleaning the tower and condenser two or three times a year (to maintain capacity and power costs).

Operating costs will naturally be dependent upon the section of the country in which the unit is to be installed and will thus be normally much higher in southern than northern regions (see map, page 33).

The complete-home air-conditioning industry is still in its infancy, and there are many needed improvements which may soon become reality. Control of odors from cooking and smoking—a problem in many installations—should soon be solved. It is also to be expected that the means for the removal of the fine dust and dirt, which go right through most present-day filters, will be very much improved in time.

Notes on air conditioner listings

Air conditioner sizes are shown either in terms of horsepower of the compressor drive or as tons of refrigeration developed. In water-cooled models, horsepower and tons are virtually synonymous, but with air cooling the horsepower goes up and the tons of refrigeration down as the ambient (outside) temperature rises (see text under "Air-cooled conditioners," March 1955 BULLETIN, page 32). One ton of refrigerating effect is equivalent to heat transfer of 12,000 Btu per hour. (A ton is the removal of Btu required to freeze 1 ton of water at 32°F in 24 hours; the number of Btu that must be removed to freeze 1 pound of water is 144. To freeze a ton of water in 24 hours requires removal of 288,000 Btu or 12,000 an hour.)

Multiple air-conditioning units can be used with the obvious advantage of flexibility (i.e., two 2-horsepower units instead of one 4-horsepower, etc., permit use of one unit in mildly hot weather, two when really hot days come along). In some cases a manufacturer may include two compressors in a single casing (see *Luxaire*).

Unless otherwise noted, the models listed below are equipped with blowers for air circulation to the house, thermostatic controls, and damper controls to provide separate air flows of air for cooling and heating. Most models listed can be supplied with either 1- or 3-phase motors. 220 volts should always be used for units drawing a total of ¾ horsepower (¾ ton—1000 watts) or more.

The following makes have been examined by CR's engineers.

Air-O-Matic (Eureka-Williams Co., Div. Henney Motor Co., Inc., 1211 E. Bell St., Bloomington, Ill.) 2 and 3 hp. (2 and 3 tons) models, *water-cooled*. "Semi-hermetically sealed." A packaged unit with blower optional, designed for attachment to otherwise separate forced warm-air heating system. Available in three types for installation in basement, utility room, or attic.

Airtemp (Airtemp Div., Chrysler Corp., 1600 Webster St., Dayton, Ohio) A wide range of both *air-cooled* and *water-cooled* models. A problem with air-cooled models has been the disposal of large volumes of the heated air which is a by-product of the cooling process; Airtemp meets this by placing the condenser in the back yard (or garage). A companion piece, the cooling coil, is located in the main furnace air discharge duct; the two components are connected by insulated lengths of copper tubing. Air-cooled models are also available as package units, and as integrated gas- or oil-fired summer-winter models in either lo-boy or hi-boy styles. *Air-cooled* models are offered in 2 and 3 hp. (2 and 3 tons; see text) units only. *Water-cooled* models are available in 2, 3, and 5 hp. (2, 3, and 5 tons) separate units, or as integrated with oil- or gas-fired furnaces.

Delco (Delco Appliance Div., General Motors Corp., Rochester, N.Y.) Complete winter-summer integrated air-conditioning units. Two models, gas- and oil-fired. One size, 75,000 Btu heating output (bon-

net), 3 hp. (3 tons) cooling. Sealed condensing unit, *water-cooled*.

General Electric (General Electric Co., 5 Lawrence St., Bloomfield, N.J.) A wide selection of both *water-* and *air-cooled* models in up-flow, down-flow, and horizontal types for installation in basements, utility rooms, attics, and crawl spaces. 1½ to 7½ hp. (1½ to 7½ tons). Models are available for separate air cooling, such as for use with matching *GE* oil- and gas-fired furnaces; also integrated summer-winter air-conditioning assemblies for either gas or oil with heating range of 48,000 to 168,000 Btu (bonnet). Hermetically sealed compressors. ¶GE has recently announced availability of a heat-pump unit, *Weathertron*, which obtains its heat supply from the atmospheric air. No information yet available on this model.

Heil (The Heil Co., 3000 W. Montand St., Milwaukee 1) 2 and 3 hp. (2 and 3 tons) *water-cooled* models in six types for use either in series with winter forced warm-air furnaces or with *Heil Series BC* blower cabinets (extra cost). Models for cellar, utility room, attic, and crawl-space installations.

Home Weathermaker (Carrier Corp., 300 S. Geddes St., Syracuse) 2 and 3 tons (2 and 3 hp.) of refrigeration in *water-cooled* models; 1¾, 2, and 3 tons (1¾, 2, and 3 hp.; see text) of refrigeration in *air-cooled* types. Other models to 7½ tons (7½ hp.) including equipment with optional heating coils. All models have full thermostatic and damper controls; most have their own blowers.

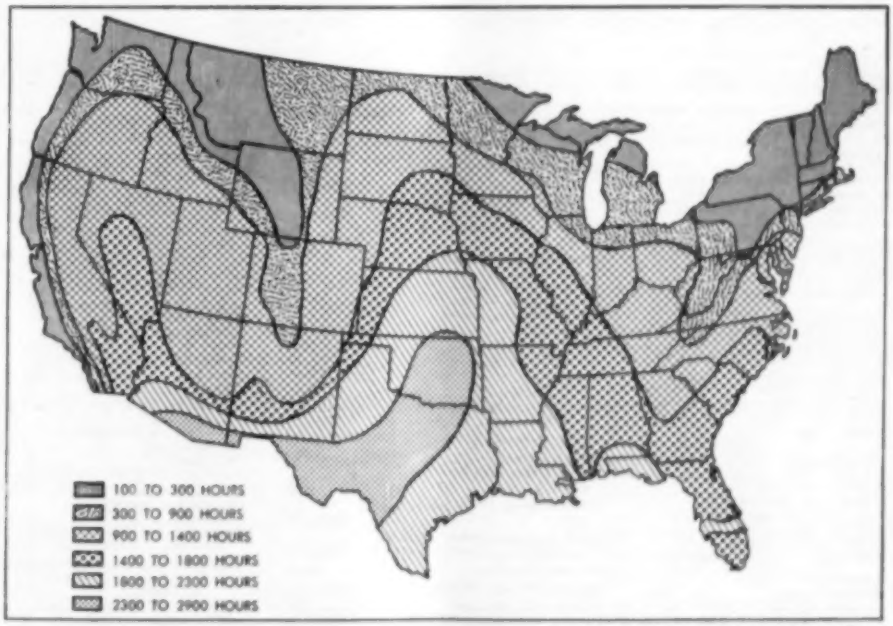
Iron Fireman (Iron Fireman Mfg. Co., 3170 W. 106 St., Cleveland 7) 2 and 3 hp. (2 and 3 tons). No blowers; damper controls optional.

Luxaire (The C. A. Olsen Mfg. Co., Elyria, Ohio) Integrated oil- or gas-fired summer-winter *water-cooled* air-conditioning units. Two sizes: 80,000 and 100,000 Btu (bonnet) output with gas-firing or 84,000 and 112,000 with oil-firing. *York*-built hermetically sealed cooling units, 2 and 3 hp. (2 and 3 tons). Twin compressors *on the 2-hp. model* provide flexible operation. As dampers are not used, heating coils are ceramic-coated for protection. Several types offered, for basements, utility rooms, crawl spaces, and attics. Also hand- or stoker-fired models for coal.

Mayfair (Sunbeam Air Conditioning Div., American Radiator Corp., Elyria, Ohio) 2, 3, and 5 hp. (2, 3, and 5 tons) models, *water-cooled*. Blowers optional, according to model selected. Hermetically sealed refrigerating circuits. Choice of built-in or room thermostat.

Mor-Sun (Morrison Steel Products Co., 601 Amherst St., Buffalo) (Not available until autumn 1955.) 2 and 3 hp. (2 and 3 tons) *water-cooled* units. Self-contained including blower, but designed to supplement *Mor-Sun* forced warm-air heating systems.

Quiet Kool (Quiet Kool Corp., 46 Oliver St., Newark 5, N.J.) (Not available until August 1955.) 2 and 3 hp. (2 and 3 tons) models, *water-cooled*. Packaged cooling units with self-contained fans and complete thermostatic control system, which also include heating coils for activation by separate steam or hot-water boiler to permit use of same ducts for heating and cooling. Electric damper control for seasonal changes (optional).



Courtesy Frigidaire Div., General Motors Corp.

The map above shows the number of hours the outside temperature exceeds 80°F each year, on the average.

Sun (J. V. Patton Co., Sycamore, Ill.) 2, 3, and 5 hp. (2, 3, and 5 tons) *water-cooled* floor-type models with or without blowers and 2 and 3 hp. (2 and 3 tons) suspended-type models; blowers optional.

Timken Silent Automatic (Timken Silent Automatic Div., Rockwell Springs Axle Co., Jackson, Mich.) 2 and 3 tons (2 and 3 hp.) of refrigeration, *water-cooled*. For use with new or existing forced warm-air furnaces, but supplied complete with blower to operate independently of the furnace. Cooling compressor unit is hermetically sealed in a cartridge assembly that can be quickly removed and replaced rather than repaired locally (very desirable). Permanent washable filter.

Typhoon and Prop-R-Temp (Typhoon Air Conditioning Co., Inc., 794 Union St., Brooklyn 15, N.Y.) 12 models in 2, 3, and 5 hp. (2, 3, and 5 tons) in combination with gas and oil furnaces; no damper controls. 11 models of *water-cooled* heat pump in 2, 3, 5, 7½, 10, 15, and 20 hp. (2, 3, 5, 7½, 10, 15, and 20 tons) providing summer cooling and winter heating from same mechanism.

Westinghouse (Westinghouse Corp., Pittsburgh) *Type RG* and *RO*. 2-hp. *water-cooled* units only. Available for either gas (*Model RG*) or oil (*Model RO*) for heating. An attractive, self-contained all-year unit. Hermetically sealed cooling package removable for exchange or repair if necessary. Also available as a winter heating unit to which cooling package may be added later if desired. Complete damper system and controls. Heating capacity, 72,000 Btu at bonnet with gas or oil, with optional 84,000 Btu model for oil only.

Worthington (Worthington Corp., Harrison, N.J.) 2 and 3 hp. (2 and 3 tons), *water-cooled*. 80,000 Btu gas-fired or 83,000 Btu oil-fired forced warm-air furnace combined with 2 or 3 hp. (2 or 3 tons) cooling units. Gas-fired furnace has burner which has automatic flame adjustment (modulated). In the absence of dampers, ceramic-coated heat exchangers are used to minimize corrosion.

* * *

The following are some other rather large manufacturers who supply central air-conditioning units.

Bryant Heater Div., Affiliated Gas Equip. Inc., 17825 St. Clair Ave., Cleveland 10.
Coleman Co., Inc., 250 N. St. Francis, Wichita 1, Kans.
Conco Engineering Works, Mendota, Ill.
Emerson Radio & Phono. Corp., 111 Eighth Ave., New York 11.
Frigidaire Div., G. M. Corp., 300 Taylor St., Dayton 1, Ohio.
Hupp Corp., Refrig. Prod. Div., 1250 W. 76 St., Cleveland 2.
The Lennox Furnace Co., 4901 Marsalis Ave., Fort Worth, Tex.
Lipman Div., Yates American Machine Co., S. Beloit, Ill.
Muncie Gear Works, Inc., Muncie, Ind.
Perfection Stove Co., 7609 Platt Ave., Cleveland 4.
Philco Corp., Philadelphia 34.
Surface Combustion Corp., Columbus 16, Ohio.
Thatcher Furnace Co., Garwood, N.J.
Union Asbestos & Rubber Co., 332 S. Michigan Blvd., Chicago 4.
U.S. Radiator Corp., 439 Penobscot Bldg., Detroit 26.
Westinghouse Electric Corp., Hyde Park, Boston 36.
York Corp., York, Pa.

Abridged Cumulative Index of Previous 1955 Consumers' Research Bulletins

†*indicates that listings of names or brands are included.*

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines — some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N. Y.), *The Exhibitor, The Farm Journal, Films in Review, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D. A. R. Preview Committee, Reviews and Ratings* by the Protestant Motion Picture Council, *The Tablet, Time, Variety* (weekly).

The figures preceding the title of the picture indicate the number of critics whose judgments of its entertainment values warrant a rating of A (recommended), B (intermediate), or C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Ansco, Eastman, Technicolor, Trucolor, Warner Color, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
—	4	2	**Abbott and Costello Meet the Keystone Kops**	*com AYC*
—	3	12	**Adventures of Hajji Baba, The**	*adv-c A*
—	1	4	**Affairs of Messalina, The (Italian)**	*hist-dr A*
—	7	6	**Africa Adventure**	*trav-c AYC*
—	7	2	**Americano, The**	*mel A*
—	5	3	**An Inspector Calls (British)**	*mys-mel A*
—	4	—	**Angelika (German)**	*dr A*
2	9	2	**Animal Farm**	*car-c AY*
—	12	4	**Athena**	*mus-com-c AY*
—	2	7	**Atomic Kid, The**	*com A*
5	9	2	**Bad Day at Black Rock**	*soc-dr-c A*
—	2	7	**Bamboo Prison, The**	*war-dr A*
4	5	10	**Barefoot Contessa, The**	*dr-c A*
1	8	4	**Battle Cry**	*war-dr-c A*
—	6	2	**Battle Taxi**	*war-mel AY*
—	11	2	**Beachcomber, The (British)**	*mel-c A*
4	13	2	**Beau Brummell**	*hist-dr-c A*
—	6	2	**Belles of St. Trinian's, The (British)**	*com A*
—	7	8	**Bengal Brigade**	*mel-c AY*
—	—	3	**Big Chase, The**	*cri-mel A*
—	3	2	**Big Combo, The**	*cri-mel A*
—	5	7	**Black Dakotas, The**	*hist-mel-c AY*
—	9	6	**Black Knight, The (British)**	*adv-c AYC*
2	8	4	**Black Shield of Falworth, The**	*adv-c AYC*
—	2	6	**Black 13 (British)**	*cri-mel A*
—	6	8	**Black Tuesday**	*mel A*
—	12	4	**Black Widow**	*mys-mel A*
1	2	2	**Blackboard Jungle, The**	*soc-dr A*
1	6	2	**Bob Mathias Story**	*biog AYC*
—	8	1	**Bounty Hunter, The**	*wes-c A*
—	1	3	**Bowery to Bagdad**	*com A*
—	10	2	**Bread, Love and Dreams (Italian)**	*com A*
7	10	1	**Bridges at Toko-Ri, The**	*war-dr-c A*
2	8	8	**Brigadoon**	*mus-com-c AYC*
—	3	11	**Bullet is Waiting, A**	*cri-mel-c A*
—	1	7	**Cannibal Attack**	*mel-c AYC*
—	4	1	**Captain Lightfoot**	*adv-c A*
6	7	6	**Carmen Jones**	*mus-mel-c A*
—	—	3	**Carolina Cannonball**	*com A*
—	6	8	**Cattle Queen of Montana**	*wes-c AYC*
—	1	2	**Cavalcade of Song (Italian)**	*mus-dr A*
—	—	3	**Chance Meeting (British)**	*dr A*
—	4	—	**Chief Crazy Horse**	*mel-c AYC*
2	6	2	**Cinerama Holiday**	*trav-c AYC*
—	1	2	**City Stands Trial, A (Italian)**	*cri-mel A*
—	2	4	**Companions of the Night (French)**	*soc-dr A*
7	9	1	**Country Girl, The**	*dr A*
—	—	3	**Crashout**	*mel A*
—	10	7	**Crest of the Wave (British)**	*war-dr AYC*
—	5	3	**Cry Vengeance**	*cri-mel A*
—	5	1	**Day of Triumph**	*dr-c A*
4	8	6	**Deep in My Heart**	*mus-biog-c A*
3	7	7	**Desirée**	*hist-dr-c A*
—	2	4	**Desperate Decision (French)**	*dr A*
—	—	3	**Desperate Women, The**	*soc-dr A*
—	5	5	**Destry**	*wes-c A*
1	9	6	**Detective, The (British)**	*mys-mel A*
—	1	8	**Devil's Harbor (British)**	*mel AYC*
1	8	3	**Doctor in the House (British)**	*com-c A*
—	9	2	**Down Three Dark Streets**	*cri-mel AY*
—	14	5	**Dragnet**	*cri-mel-c AYC*
—	8	6	**Drum Beat**	*mel-c AY*
—	5	7	**Duel in the Jungle**	*mel-c A*
2	1	2	**East of Eden**	*dr-c A*
3	8	6	**Egyptian, The**	*dr-c A*
—	11	2	**Far Country, The**	*mel-c A*
—	2	3	**Fast and the Furious, The**	*mel A*
—	3	10	**Fire Over Africa**	*mys-mel-c AY*
—	6	8	**Four Guns to the Border**	*wes-c A*
—	2	3	**Four Ways Out (Italian)**	*cri-mel A*
—	7	2	**French Touch, The (French)**	*com A*
—	6	—	**Fuss Over Feathers (British)**	*war-dr AY*
—	6	6	**Gambler from Natchez, The**	*mel-c A*
—	4	6	**Game of Love (French)**	*dr A*
—	3	1	**Gangbusters**	*cri-mel A*
—	1	3	**Garden of Eden**	*dr-c A*
7	2	2	**Gate of Hell, The (Japanese)**	*dr-c A*
—	4	1	**Glass Slipper, The**	*mus-fan-c AYC*
—	7	6	**Golden Mistress, The**	*mel-c A*
—	3	3	**Good Die Young, The (British)**	*cri-mel A*
—	12	3	**Green Fire**	*dr-c A*
—	5	4	**Green Scarf, The (British)**	*mys-mel A*
—	1	3	**Half a Century of Songs (Italian)**	*mus-dr-c A*
—	2	1	**Half Way to Hell**	*war-doc A*
2	13	4	**Hansel and Gretel**	*mus-fan-c AYC*

A	B	C		
—	4	6	**Heart of the Matter, The (British)**	*dr-c A*
1	2	1	**Heartbreak Ridge**	*war-dr-c A*
—	1	2	**Heat Wave (British)**	*cri-mel A*
—	6	2	**Hello Elephant (Italian)**	*com A*
1	3	—	**Hell's Gate (Japanese)**	*dr-c A*
—	4	5	**Hell's Outpost**	*mel A*
3	12	3	**High and Dry (British)**	*com AYC*
—	3	2	**Hit the Deck**	*mus-com-c A*
—	9	—	**Holiday for Henrietta (French)**	*com A*
—	12	4	**Human Jungle, The**	*cri-mel A*
1	9	1	**Hunters of the Deep**	*doc-c AYC*
—	2	6	**Illicit Interlude (Swedish)**	*dr A*
—	4	—	**Innocents in Paris (British)**	*com A*
—	7	1	**Intruder, The (British)**	*war-dr A*
—	—	4	**Jail Bait**	*cri-mel A*
1	3	1	**Jazz Dance**	*doc AY*
—	—	9	**Jesse James' Women**	*mus-wes-c A*
—	1	2	**Jungle Gents**	*com AYC*
2	5	4	**Jupiter's Darling**	*mus-com-c A*
—	2	1	**Karamoja**	*doc-c A*
—	3	8	**Khyber Patrol**	*adv-c AYC*
—	—	3	**Killer Leopard**	*mel AYC*
—	2	1	**Land of Fury (British)**	*dr-c A*
1	10	4	**Last Time I Saw Paris, The**	*dr-c A*
—	1	4	**Lawless Rider, The**	*wes AYC*
—	5	1	**Life in the Balance, A**	*mel A*
5	9	2	**Little Kidnappers, The (British)**	*dr A*
—	2	1	**Littlest Outlaw, The**	*dr-c AY*
3	10	2	**Long Gray Line, The**	*dr-c AYC*
1	2	2	**Long John Silver**	*adv-c A*
—	8	4	**Lovers, Happy Lovers (British)**	*dr A*
—	3	1	**Mambo (Italian)**	*mus-dr A*
—	2	1	**Man Without a Star**	*wes-c A*
—	6	2	**Many Rivers to Cross**	*mel-c A*
—	4	4	**Masterson of Kansas**	*wes-c AYC*
—	2	2	**Mlle. Gobette (Italian)**	*com A*
—	1	2	**Murder is My Beat**	*cri-mel A*
—	6	7	**Naked Alibi**	*cri-mel A*
—	1	3	**New Orleans Uncensored**	*mel A*
—	6	2	**New York Confidential**	*cri-mel A*
—	2	2	**One Summer of Happiness (Swedish)**	*dr A*
—	8	1	**Operation Manhunt**	*mys-mel AYC*
1	3	1	**Othello**	*dr A*
—	2	5	**Other Woman, The**	*mel A*
—	3	5	**Outlaw's Daughter, The**	*wes-c A*
—	—	3	**Paid to Kill (British)**	*mys-mel A*
—	6	2	**Paris Incident (French)**	*dr A*
—	1	13	**Passion**	*mel-c A*
—	—	3	**Phantom Stallion**	*wes AYC*
1	9	7	**Phffft**	*com A*
—	2	3	**Pirates of Tripoli**	*adv-c A*
—	4	3	**Port of Hell**	*mel A*
2	8	4	**Prince of Players**	*biog-c A*
—	4	7	**Private Hell 36**	*mel A*
—	2	2	**Purple Plain, The (British)**	*war-dr-c A*
2	5	1	**Quest for the Lost City**	*doc-c AYC*
—	8	5	**Racers, The**	*mel-c A*
—	3	5	**Ricochet Romance**	*com AYC*
—	7	9	**Rogue Cop**	*cri-mel A*
15	2	1	**Romeo and Juliet (Italian)**	*dr-c AY*
—	5	4	**Roogie's Bump**	*fan AYC*
—	1	4	**Runaway Bus, The (British)**	*com A*
—	—	3	**Sabaka**	*mel-c A*
—	3	2	**Security Risk**	*mys-mel A*
—	5	7	**Shanghai Story, The**	*mys-mel A*
—	7	9	**Shield for Murder**	*cri-mel A*
1	10	4	**Sign of the Pagan**	*hist-dr-c A*
1	5	8	**Silver Chalice, The**	*dr-c A*
—	—	3	**Simba (India)**	*dr-c A*
1	6	8	**Sitting Bull**	*hist-mel-c AY*
1	8	6	**Six Bridges to Cross**	*cri-mel A*
—	4	2	**Sleeping Tiger, The (British)**	*mel A*
—	3	2	**Smoke Signal**	*wes-c AYC*
—	—	5	**Snow Creature**	*sci AY*
—	10	4	**So This is Paris**	*mus-com-c A*
—	3	—	**Souls in Conflict**	*doc-c AY*
—	3	—	**Square Ring, The (British)**	*mel A*
10	3	3	**Star is Born, A**	*mus-dr-c A*
—	4	6	**Steel Cage, The**	*biog AYC*
—	4	2	**Stranger's Hand, The (British-Italian)**	*mys-mel A*
—	11	7	**Suddenly**	*cri-mel A*
—	—	4	**Sunderin (German)**	*dr A*
—	1	5	**Target Earth**	*sci A*
—	—	4	**Tarzan's Hidden Jungle**	*adv A*
—	4	4	**Ten Wanted Men**	*wes-c A*
—	1	3	**Tender Hearts**	*dr A*
—	1	2	**Texas Bad Man**	*mel AYC*
—	4	4	**Theodora, Slave Empress (French-Italian)**	*hist-dr-c A*
5	6	6	**There's No Business Like Show Business**	*mus-com-c A*
—	6	4	**They Rode West**	*wes-c AYC*
—	4	1	**They Were So Young**	*soc-dr A*
—	2	13	**This is My Love**	*dr-c A*
2	6	—	**This is Your Army**	*doc-c AYC*
—	4	6	**Three for the Show**	*mus-dr-c A*
—	6	6	**Three Hours to Kill**	*mel-c A*
2	8	5	**Three Ring Circus**	*com-c AYC*
—	—	3	**Three Stops to Murder (British)**	*mys-mel A*
—	—	3	**Thunder Pass**	*wes AYC*
—	4	1	**Timberjack**	*mus-mel-c AYC*
—	2	6	**Tobor, the Great**	*sci-mel AY*
—	6	3	**Tonight's the Night (British)**	*com-c A*
—	7	12	**Track of the Cat**	*dr-c A*
—	2	1	**Treasure of the Ruby Hill**	*wes AYC*
—	5	3	**Trouble in Store (British)**	*com AYC*
—	4	4	**Trouble in the Glen (British)**	*com-c AYC*
—	1	2	**True and the False, The (Swedish)**	*dr A*
7	5	1	**20,000 Leagues Under the Sea**	*adv-c AYC*
—	3	7	**Twist of Fate**	*mys-mel A*
—	1	3	**Two Guns and a Badge**	*wes A*
2	8	3	**Ugetsu (Japanese)**	*dr A*
1	12	1	**Unchained**	*soc-dr A*
1	9	6	**Underwater!**	*mel-c A*
—	1	8	**Unholy Four, The (British)**	*mys-mel A*
—	1	2	**Untamed**	*mel-c A*
—	1	2	**Varietease**	*com A*
1	7	3	**Vera Cruz**	*mel-c A*
1	9	5	**Violent Men, The**	*mel-c A*
—	—	3	**Voice of Silence, The (Italian)**	*dr A*
1	4	4	**Wages of Fear, The (French)**	*propaganda-dr A*
—	4	—	**Welcome the Queen**	*doc-c AYC*
1	9	4	**West of Zanzibar (British)**	*mel-c AYC*
4	6	6	**White Christmas**	*mus-com-c AYC*
—	6	1	**White Feather**	*wes-c A*
—	1	6	**White Fire (British)**	*mel A*
—	4	4	**White Orchid, The**	*adv-c A*
—	—	4	**Woman's Angle, The (British)**	*dr A*
2	10	5	**Woman's World**	*dr-c A*
—	5	6	**Women's Prison**	*soc-dr A*
—	2	2	**World Dances, The**	*mus-doc-c AYC*
—	1	3	**Wyoming Renegades**	*wes-c A*
—	2	8	**Yellow Mountain, The**	*wes-c A*
—	3	1	**You Know What Sailors Are (British)**	*com-c A*
1	10	3	**Young at Heart**	*mus-com-c A*
—	1	2	**Yukon Vengeance**	*mel AYC*

The Consumers' Observation Post

(*Continued from page 4*)

reporting such cases to the National Better Business Bureau, Chrysler Building, New York City, and the Federal Trade Commission, Washington 25, D.C.

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THE NEW TUFTED COTTON RUGS cannot be cleaned satisfactorily on location if they are allowed to get too dirty. The National Institute of Rug Cleaning, in an excellent study prepared by Col. James W. Rice, Director of Research, and Richard N. Hopper, reported that such carpeting will need to be taken up and cleaned by a competent rug-cleaning establishment at the plant. It was found also that pastel rugs show dirt more than other shades and, all things being equal, need cleaning more frequently. Better grade carpets, with good tuft density, will clean easier than less expensive grades; the study indicated that an increase in tuft density of 5 percent to 10 percent will make an appreciable improvement in cleanability.

* * *

BUILT-IN KITCHEN APPLIANCES are currently fashionable topics of conversation in certain circles and are primarily of interest to builders of new homes. Whether this type of appliance will be generally popular is a big question to which manufacturers would like to know the answer. At present there is a lack of any standardization in the field which presents real difficulties to the manufacturers of cabinets. Electric ovens, for example, are reported by one trade paper to be coming out in such irregular sizes that they require custom installation, an expensive job. According to Retailing Daily, efforts are being made by the Steel Kitchen Cabinet Manufacturers Association, the National Electrical Manufacturers Association, and the Gas Appliance Manufacturers Association toward industry standardization of kitchen cabinet sizes in order to make the installation job easier. At the current stage of development, however, the all-built-in "dream kitchen" requires the services of an interior decorator, an expert home economist, not to mention a competent plumber, carpenter, and electrician, to do the complete job satisfactorily.

* * *

THE SIZING OF WOMEN'S AND MISSES' GARMENTS is now systematized, and a set of standards has been proposed by the U.S. Department of Commerce that should enable the woman who wears size 12 to be reasonably sure of being fitted whether she pays $12 or $40 for a size 12 dress. The new standards provide for two basic categories: "misses" for the slim type; and

"women's" for the more mature figure. Then there are odd sizes for juniors and half-sizes for shorter women. The two main categories are divided further into "regular," "tall," and "short," with a further separation into "average hip," "slender hip," and "full hip." It is hoped that the mass-production of ready-to-wear clothing in the women's field will be improved by the speedy adoption of these voluntary standards and classifications in order to reduce the cost of alterations, a troublesome problem with many stores and an item of expense to consumers. One retailing executive has estimated that 25 percent of women's clothing returns is due to misfits. If this attempt to bring order out of chaos in the clothing field works successfully, a similar job may be done for men's wear.

* * *

PRICE CUTS on 1954 models of room air-conditioning units have been widely used in an effort to dispose of last year's models before the hot weather begins and the new 1955 models must be pushed. New York City, St. Louis, and Atlanta, are reported to have done a big business at drastically reduced prices ($100 to $230 off, in New York City). The makes include newcomers to the field as well as firms of the highest reputation and standing in room air conditioners. Retailers and manufacturers in some cases admit, according to the New York Times, that the 1954 models may not look as pretty but they differ very little mechanically from the 1955 units.

* * *

NEW GADGETS:

Rubber Scrubber (Rubber Scrubber Corp., P. O. Box 122, Watertown, N.Y.), 15 cents each (available in lots of 100, at $9, for resale by church groups and social organizations). Scouring pads of sponge rubber, approximately 3 inches square, impregnated on one face with a gritty substance. Examination indicated that this was corundum, a harsh, sharp abrasive that will cut anything short of a diamond. It will abrade hardened steel and score deeply copper, aluminum, enamelware, linoleum, ceramic products, indeed, almost anything around the household. It was effective in removing stubborn soil, but left noticeable scratches on aluminumware on which it was used. It did not remove burned food spots from the rough metal parts of a gas range so well as a paste oven cleaning product called Easy-Off. It was not applied on enamel surfaces of sinks and bath tubs in view of the permanent marring that would result from scratches of such an extremely sharp abrasive. The item cannot be recommended for general household use, but only for surfaces of fairly rough, common materials, such as cast iron, rough stone, concrete, etc.

Phonograph Records

BY WALTER F. GRUENINGER

Please Note: The first symbol applies to quality of interpretation, the second to fidelity of recording.

Bach: *Partita No. 2* and *Sonata No. 1* for Unaccompanied Violin. Milstein. Capitol P 8298. $4.98. Bach playing par excellence with the minor criticism that the "Chaconne" (one of the greatest violin pieces ever composed) suffers a little from the introduction of slides and changes of tempo. A AA

A Bach Recital by James Friskin (piano). 6 sides, Bach Guild BG 543/4/5. $14.94. The "Italian" Concerto, 4 "French Suites" and other pieces played clearly, precisely—yet dryly, for my taste—by a pianist very highly rated in this field by his colleagues. A A

Bartok: *Bluebeard's Castle.* Koreh, Hellwig (singers) with the New Symphony Orchestra under Susskind. 4 sides, Bartok 310/311. $12.90. A chilling work for soprano, bass, and orchestra, depicting the opening of the seven doors by Judith. Masterful on the part of the composer are the sustained mood and the climax. Marvelously sung, played, and recorded. AA AA

Beethoven: *Concerto No. 5* ("Emperor"). Fischer with the Philharmonia Orchestra under Furtwängler. Victor LHMV 4. $4.98. Fischer's playing in this great concerto nearly matches that of Backhaus in London LL 879, but it is not as clean and bubbly. The over-all conception, however, is broad, Beethovenesque, commendable. Excellent orchestral support under the late Furtwängler . . . . Victor's fancy packaging includes a picture of Anthony van Dyck suitable for framing. In fact, some of the reading material that now accompanies new records is more exciting than the records. A A

Beethoven: *Overtures.* Orchestra of the Vienna State Opera under Scherchen. Westminster WL 5335. $5.95. "Coriolan" and "Prometheus" are the only ones of these six that are played frequently, but the idea of making all available on one disk is good. Scherchen directs straightforwardly. AA AA

Chopin: *Etudes, Op. 10* and *Scherzo No. 1.* Novaes (piano). Vox PL 9070. $5.95. High on the list of Chopin's finest and most popular works are the *Etudes.* Novaes is a remarkably sensitive, lyric player, and she is well recorded, making this an outstanding disk. My pressing is slightly off center, causing pitch wobble. AA A

Franck: *Symphony in D Minor.* Philadelphia Orchestra under Ormandy. Columbia ML 4939. $3.98. Compared with the other worthy recordings of Franck's only symphony, this one certainly ranks with the best in fidelity. Ormandy is fussy, though there's power and dramatic excitement, too . . . . Sixteen recordings of this symphony are listed in Schwann's catalog. I have had much pleasure from RCA Victor LM 1065 with Monteux, Mercury MG 50023 with Paray, Westminster WL 5311 with Rodzinski, London LL 967 with Furtwängler. A AA

Haydn: *Symphonies 100* and *102.* London Philharmonic Orchestra under Solti. London LL 1043. $3.98. Haydn was at the crest of the wave when he composed these fine works. Smoothly recorded and, if not the best Haydn playing I've heard, very good indeed. A AA

Mozart: *Symphonies Nos. 35* and *41.* Rochester Philharmonic Orchestra under Leinsdorf. Columbia RL 3103. $2.98. Two outstanding Mozart symphonies reasonably well performed and recorded. Perhaps there's more nuance here and there in the best orchestras, but here is spirited, youthful playing that will please most listeners and the price is low. A A

Puccini: *Madame Butterfly.* Petrella, Tagliavini, Taddei, etc., under Questa. 6 sides, Cetra C 1248. $11.94. A satisfactory performance. Petrella's voice is rich and warm, but a mite too throbby. Tagliavini is lyric and robust (sometimes too much so) and the direction is first rate. So is the recording. Of the competition, best performed is the Gigli-del Monte-Victor LCT 6006, but it is a collector's issue, with sound not up to today's best. A AA

Rachmaninoff: *Symphony No. 2.* Pittsburgh Symphony Orchestra under Steinberg. Capitol P 8293. $4.98. Heavy emotional and melodic appeal in this music which I thoroughly enjoy now and then, though some musicians disparage it. Steinberg directs with masterful sweep and is very well recorded. Certainly the equal of the Ormandy-Columbia ML 4433. AA AA

Saint-Saëns: *Piano Concerto Nos. 2* and *5.* Frugoni with the Pro Musica Symphony under Swarowsky. Vox PL 8410. $5.95. The first and last of Saint-Saëns' piano concerti still in the repertoire. The performance is excellent in every respect. The recording fully matches it, with the exception of the innermost bands of *Concerto No. 5* where fuzziness sets in. AA A

Strauss: *Wine, Women and Song* and Other Waltzes, Polkas, Marches, and Czardas. Vienna State Opera Orchestra under Paulik. Vanguard VRS 457. $4.98. Seven tuneful Viennese pieces acceptably played. A AA

Tchaikovsky: *Violin Concerto.* Mischa Elman with the London Philharmonic Orchestra under Boult. London LL 1073. $3.98. Elman's playing reveals technical weaknesses and a highly personal conception which has its interesting points, including remarkably rich tone. Of the other violinists who have recorded it, my preference is for Heifetz on RCA Victor LP 1111, but he is not well recorded. Ricci gets the best recording on London LL 172 and plays brilliantly. B A

Verdi: *Otello.* Tebaldi, del Monaco, Protti, etc., under Erede. 6 sides, London LLA 24. $11.92. Verdi's masterpiece finds Tebaldi absolutely first rate as Desdemona; del Monaco less than musical in some of his scenes, though his voice is generally good; Protti nearly matching the excellence of Tebaldi in his role of Iago . . . . Despite some faults, however, the set to buy is the Toscanini-RCA Victor LM 6107 for the Toscanini direction. A AA

Columbia's World Library of Folk and Primitive Music. 14 disks, $5.95 each. Columbia SL 204-217. The six disks heard convince me there is far more educational value than entertainment value here. The descriptive notes are well prepared; the fidelity ranges from good to fair. Educators should investigate if they are interested in the music of Ireland, Africa, Scotland, India, Yugoslavia, etc. A B

Hearing is Believing. RCA Victor SRL 12-1. $1. Side one of Victor's hi-fi demonstration disk offers excerpts from old and new recordings to demonstrate "hi-fidelity." Side two offers nine pieces recorded in New Orthophonic sound. It's entertaining as well as instructive to play for friends who come to hear your hi-fi set-up.

The Irish Festival Singers. Kitty O'Callaghan, director. Angel 65016. $4.95. Many readers are likely to find enjoyment in this disk. It presents "The Stuttering Lovers," "Padraic the Fiddler," "Danny Boy," and other Irish ballads and folksongs by a group of 13 who vary solo with choir in a charming manner. Phenomenal "presence" in the recording. . . Superior to the singing of Father Sydney MacEwen who does "Ireland My Home," "Mother Machree," and similar sentimental songs on MGM E 3152. AA AA

Billy May's Naughty Operetta. Billy May and His Orchestra. Capitol H 487. $2.98. Disappointing. The musicians do what's expected of them—moaning saxaphones, raucous trumpets, jazzed up versions of "Vilia," "One Kiss," "Rose Marie," etc. But a little of this "humor" goes a long way. A A

COMING

in Consumers' Research Bulletin

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- Beltone
- Otarion
- Paravox
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- Telex
- Zenith

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Automobile Polishes and Waxes

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- All Channel Ultra 150
- Amphenol Inline
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- Gonset Radarray
- JFD JeTenna
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